

# AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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## American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, September 9, 1854.

### Erie Railroad.

In our last issue we gave a brief history of the above road in which we accounted for the position it holds in public estimation, and showed, we think, that well managed, it may yet be made productive property upon its cost. We will now indicate the policy which we think the company must pursue to extricate itself from the financial difficulties in which it is now placed, and to secure credit and confidence for the future.

The great difficulty under which the Erie Company now labors, is a want of credit, or confidence in its management. There are some who have lost faith in it altogether, but for no better reason than that it has come to be unpopular. The more numerous class, who believe the road to be good property, properly managed, will not step forward to its aid unless some plan is proposed, which is adequate to the object they have in view—complete extrication of the company from its present position. They believe the run-

ning department is well looked after, and that the road is sufficiently productive. Their objection is to its financial management; or perhaps we should say, they will not come to the aid of the company unless some plan be adopted, which shall place its credit on high ground, and prevent beyond possibility, the recurrence of the present crisis. We will state what this plan or policy, in our opinion, should be.

The great incubus upon the company's credit at the present time are the *Income Bonds*, which fall due in February, to the amount, say, of \$2,700,000. As the public believe that these bonds cannot be paid in cash, the absence of any plan for their liquidation is producing nearly the same results as if they had been actually dishonored. We assume that they will not be paid, that they must be met by the creation of a new indebtedness. The point to be determined is, what shall this new liability be.

The duty of the company, or the stockholders, in default of being able to pay the bonds at maturity, is to pay them as soon as possible thereafter. They owe such an obligation to their creditors. They owe it to themselves to take a similar course, as means of restoring their own credit, and in this way of promoting their own interests; for this credit will depend entirely upon the manner in which its creditors are treated, and the future success of the road will be in proportion to the degree of this credit. The interest of the stock and bond holders in this instance therefore exactly harmonize.

If our estimates of the earnings of the company are correct, it can meet a portion of the Income bonds by the surplus earnings of the road for each year till the whole are paid. Let us see how soon this can be done.

The earnings of the road for the current year will equal probably \$5,500,000. The annual increase of earnings have been very nearly thirty per cent. Estimating the increase of earnings of the road for the next four years at only ten per cent., which is only one-half for the average for the whole country, while the earnings of this road thus far have been fifty per cent. above this average, and will probably continue to be, we have the following amount of gross earnings for four years ending in 1859, viz,

Earnings for 1855.....	\$6,050,000
" " 1856.....	6,655,000
" " 1857.....	7,820,000
" " 1858.....	8,050,000

Total earnings.....\$28,075,000

We will estimate the net earnings of the road at only 40 per cent., which is about ten per cent. less than for similar roads, and the same rate below what the net earnings of this road may be made to be. This ratio would give \$11,230,000 as the net earnings for the period named.

We estimate the funded and floating debt of the company at \$25,000,000. The interest on this for 4 years would be \$7,000,000. Deducting this sum from the net income, would leave a balance of \$4,230,000, a sum greater by \$1,530,000 than the Income bonds, which would go far toward supplying all the wants of the company for construction, till 1859.

It is certain that the Income bonds cannot be paid in cash. They must be met by a new issue, either directly to the holders of the old bonds, or sold to other parties and the former paid by the proceeds. But can a new issue on long time be sold? We think not; at any rate only at rates ruinous to the company. The third, soon to be the second mortgage bonds, are selling at a trifle over 80. At that rate, a fourth mortgage would not sell for more than 60 cents on the dollar. But simply borrowing without any suitable provision for payment will not help the matter at all. It is owing to the previous improvidence of the company in borrowing without any such provision, that it finds itself in its present dilemma. To repeat the mistake is only to aggravate the present distress.

But suppose the company, by postponing the day of payment by new loans, gain a short respite. What is to be done in 1859, when the second mortgage of \$4,000,000 falls due? A similar crisis will then impend as that which now threatens, and similar results will follow. The present distrust of the management of the road will continue. The fear that the company may not be able to sell the balance of the third mortgage will keep down the price to a ruinously low rate, or what is more probable, will prevent the possibility of their sale, and the company may then find itself threatened with a foreclosure of a mortgage, instead of a suit and judgment on a simple debt, as is the case now; a

position infinitely worse for the credit of the company, and the interest of the stock, and unsecured bond holders.

The adoption of a correct policy at the present time will accomplish a double service. It will not only extricate the company from present embarrassment, but give it credit for the future. Such a course is entirely within its power. By omitting dividends, the surplus earnings will, as we have shown, discharge the *Income* bonds in four years, and leave a large sum for extraordinary expenses. Let a sinking fund be established, to which shall be carried \$300,000, semi-annually. This fund will, in four years, reach a sum equal to the *Income* bonds. To pay these let there be issued to the holders, at *par*, new bonds, due in four years, based upon the sinking fund created as above. The holders of the *Income* bonds, seeing certain provisions made for their payment, would, we have no doubt, be glad to take the new for the old bonds; and thus immediately relieve the company from its present embarrassment.

The beneficial effect of such a course would be instantaneous upon the other securities of the company and its stock. If the stockholders have lost largely by the recent decline, the bond holders are suffering in an almost equal degree. The unsecured funded debt of the company to the amount of \$11,000,000 is selling at a discount of from 80 to 40 p.c. The third mortgage bonds of \$10,000,000 are selling at about 20 per cent. below *par*. The depreciation of these is nearly, if not quite equal to \$5,000,000!—An enormous loss for which no sufficient reason exists, and which might be made good again by the adoption of a proper policy for the future.

If, by an unwise or impolitic course on the part of the company, the bond-holders find the value of their property impaired, is there not the most direct moral obligation resting on the former, by the adoption of a new and different course, to correct the wrong of which they have been the (unintentioned) cause? Is it not their duty to restore to the bondholders the five millions which they have nominally lost? It is not for the duty of the stockholders to restore their own credit? They have not only the *Income* bonds to provide for, but they have \$4,000,000 third mortgage bonds still unsold, and which have fallen since first brought out, from 115 to about 80! These bonds can be restored to their former figure, effecting a saving to the company of nearly a million and a-half. If it be attempted to meet the *Income* bonds by a new issue, without any provision for its payment, another million must be sacrificed here. Can the company finance its means away in this manner, without inevitable ruin? Will shrewd, sagacious men, who control public opinion in monetary affairs, come to its aid under such circumstances? Certainly not. The company cannot afford to make a mistake, nor adopt any course that is not in exact harmony with the interest of its creditors, as honest men.

The stockholders are bound to adopt the course which shall secure the best results in the shortest time. In the present case, a moral obligation overrules all other considerations. There is no place left for questions of expediency. If there were, expediency and duty exactly harmonize. As before stated, the salvation of the company depends, as it has always depended, upon the degree

of credit in which it is held. Unless it secure popular confidence and support, it must fail, with it, success is certain. To secure this confidence the company must meet the present crisis as it demands. We repeat the road has the confidence of that class of men who wield the monetary influence of the city. They see that the road is successful. They will come to the support of the company as soon as competent policy is proposed for the management of its finances. But it must be a policy which places the action of the company right before the public in a moral point of view. It must be one far more comprehensive than that which postpones, from month to month, a pressing necessity, or discharges one obligation by creating another of similar kind only greater in amount. The policy must be adapted to, and be adequate to the result to be accomplished, the payment of such indebtedness as cannot be well postponed, and such provision for the future indebtedness as shall, by the peaceful operation of a law, discharge it without reducing the company to the distress now suffered.

The company hold their destiny in their own hands. It may be fortunate or disastrous, just as it chooses. The success of the road has rendered the management of the finances of the company an easy task. A right course will instantly restore its credit and place it on strong ground. A wrong one will sink it irretrievably. Will the company hesitate which to follow?

#### Improvement of the Locomotive.

BY ZERAN COLEBURN.

##### The Boiler.

Very few "feed heaters" have been successfully used upon American engines; generally because the heat absorbed was abstracted from the exhaust, or that the construction of the heater involved difficulty in the arrangement and fastenings of some portions of the work. For my own part, I never knew of a "feed heater" being applied so as to use what would otherwise have been strictly "waste heat," or else, if arranged with reference to this object, having any useful area or disposition of heating surface. I have known heaters to be proposed in the bottom of the ashpan or of the smoke-box, as if any useful heat would be caught descending upon a top plate of such a water bottom. I have known other heaters to be arranged within the sides of the smoke-box, removed from the active current of heat, or in the chimney where there was but little heating surface and that of the most unfavorable kind; or heaters depending upon the exhaust steam, much of the heat of which is absorbed in the pipes through which it escapes, while any exhaust steam abstracted reduced the available power for draught. It is so delicate a matter to employ "waste heat" to advantage, so difficult to heat the feed without involving the heat desirable for evaporation, or else without obstructing the draught, that some who have tried long to secure such an object have declared "heaters" were impracticable in locomotives. Yet careful experiments have shown, as stated in my last, that water heated from 62° to 212° could be evaporated with five-sixths of the fuel otherwise necessary. The problem is to heat the feed without any addition of fuel above what would be required to evaporate water already heated to 212°.

There must be waste heat in locomotive boilers as usually built. Heat cannot be all absorbed

when in rapid motion in a boiler tube. The heat within the smoke-boxes of wood burning engines is full 400°; in coke burning engines 400° to 800° and in McConnell's patent boiler, which attracted so much attention in England, the waste heat in the smoke-box was 1,100°. Again, the absorption of heat must be as the difference of temperature between the heating current and the object heated. A heat of 8,000° would not add heat to a furnace already heated to 3,000°, and a heat of 3,100° would only have the useful efficacy of 100°.

A heated current of 500°, passing rapidly within a tube, might not be able to impart any heat to surrounding water already heated to 375°; but if it should enter within water at 55° it might suddenly become useful.

I propose then to extend the tubes beyond the ordinary smoke-box tube sheet, and to make a water chamber by inserting an additional tube sheet across the boiler at the extreme front ends of the tubes so lengthened. By pumping the feed water into this chamber it would come in contact with from 100 to 200 square feet of useful heating surface, and would pass thence under a check valve into the boiler. I believe that two feet of tubes in such a heater would be more effective than the forward five feet of the tubes of ordinary boilers, and with less injury to the draught and a great saving of wood.

Now let me answer the objections which will arise to this plan, for every thing new must encounter objections.

First, that it would extend the tubes, and thereby produce leaking. It need not, as I am confident that it would effect an important saving to separate two feet of tubes, of the usual length, for such a heater.

Second, that if the tubes be extended as they possibly might, the draught will be obstructed. I proportion the diameter of a tube by its length, thereby greatly increasing its internal opening. For an addition of two feet to the length of a tube I should add  $\frac{3}{8}$  inch to its diameter, by which the draught would be left free.

Third, that the tubes would burn if the feed water gets low. With iron tubes, and at the extreme end of the boiler, there would be little danger. But the tubes would not need to be fitted tightly in the middle sheet, as the only object of that sheet is merely to intercept the circulation of the water, the pressure being equal in the boiler and heater. Besides, if the tubes were fitted tight in the middle sheet they could not be withdrawn. The heater would always be full of water.

Fourth, that the tubes would be cut through at the middle sheet. With iron tubes I doubt if such a result would occur, but if found possible of occurrence the tubes could be sheathed by a thimble of hard iron at the point of contact, and the forward section of the tube be expanded so as to have an opening 1-32d inch larger at the front than in the middle sheet, for inserting the tubes.

"What if steam should form in the heater?" The heater would hold it, or if steam so formed could possibly exceed in pressure that in the boiler it would quickly escape thereto through the check valve.

Now here is a rational plan for saving fuel, at a trifling expense for a heater, without obstructing the draught, and without using anything else but

what is strictly waste heat. It involves no possibility of leaking or burning, and it could easily be "blown off" as well as the body of the boiler.

#### A Revolution of Improvement.

We have thus before characterized, after the manner of a forcible simile by Lamartine, the great national impulse towards improvement and development now in force. Talk as we may, there was never before, in the same length of time, such an absolute growth of our country, such an addition of men and means, as within the last five years. Never before have we acquired such a start upon the old world in population, wealth, valuable thought and social culture. We have carried on every scheme of material improvement, we have maintained a geometrical rate of increase in the "construction account" of the country, and we have sustained ourselves upon an amount of national capital, which, if merely measured in money would appear small enough. But we had other available means. A fertile soil, temperate climate, vast natural wealth only requiring to be coined, equal laws, popular energy, and all the most improved means of applying, directing and preserving popular effort, have together realized the most of our advancement. They have also been, in themselves, the bases of the soundest foreign and domestic credit, upon which we have often relied, thus anticipating our resources for the acquisition of more. The elements to whose operation we have assigned our success have not given a fictitious standard to our wealth, for they are all independent of speculation. Our wealth is in no danger if we have not involved our credits too deeply.

But it is due to caution to say that such unexampled progress, such extended development of cities, towns, farms, mines, mills, roads and railroads, and consequently of trade and commerce, are sufficient, at the rate we have gone, to exhaust the money capital of the country within a few years. The present pressure is only the note of approach of such a crisis. The high prices, consequent upon an extended credit system, are already warning us to limit our improvements. The high price of money itself is the surest indication of the drain that has been made upon it. It is the inflation of credit which, giving a higher relative value to money, depreciates the value of stocks and bonds of fixed per-cent. interests and profits. It is the same inflation of credit which depresses stocks and which elevates the prices of food, fuel and clothing.

The truth is, money is scarce, and railroad as well as other debts feel the consequences. A little vigorous working of our farms, mines, and our manufactories of staple products, will press a little more actual wealth upon the markets and lower prices considerably. A brief postponement of new improvements, whether in city, town or hamlet, will help the recovery.

But while we admit the pressure of the times, and thus account for it, we cannot admit that railroads have done much to produce it, by the absorption of capital in their construction. Their construction has seldom been beyond the immediate commercial wants of the country. But the very commercial wants, and the general activity of expenditures which they have induced and promoted would, in time, have involved our na-

tional solvency. If railroads had only doubled their own value upon property, all would be well enough, but they have added to our wealth five-fold their own cost, and thereby conferred a prosperity to which our circumstances are not yet adapted. Railroads have elevated a standard of values under which their own is depressed, giving the community a benefit derived from the stockholders' loss.

To those whose sight is so restricted as not to be able to discover any applications of capital, except as reported in large amounts to railroad companies, we commend a survey of the progress of our country since the development of our system of railroads has commenced. If, in the vast property improvements, the concentration of people in city limits, the extended range of popular wants, the great popular efforts for social and national elevation, they can discover no cause for absorption of capital and the present stringency we can only advise them to purchase lots, erect and furnish houses, hotels and stores, grade streets and put up gas works; making their purchases at present prices of labor and materials, and then to sell their property when finished. They will be forced to admit that revolutions swallow the fortunes of multitudes, although their participation was in a revolution of improvement.

#### Concord Railroad of New Hampshire.

The thirteenth annual report of this Company shows the receipts of the road for the year ending March 31st 1884 to have been.....\$829,744 76  
Expenses of working road..... 171,111 94

Net earnings.....\$158,632 82

Out of the latter amount have been paid two four per cent. dividends on the capital stock of the Company; besides paying a state tax on the capital stock, balances to connecting roads, the purchase of two new locomotives in place of one old engine sold, and the addition of nearly \$12,000 to the permanent deterioration and contingent fund of the road. This account is now \$29,454 65.

The construction account at the date of the last report was.....\$1,409,097 79  
Increase during last year..... 24,411 12

Present construction account.....\$1,433,508 91  
Leaving of unexpended capital..... 51,491 09  
Deducting loan of \$50,000 to Portsmouth and Concord Railroad leaves.....\$1,491 09

The Concord Railroad affords one of the most successful examples of railroad enterprise in the country. Its success lies in the advantages of its route, and in the economy and fidelity with which it has been constructed and operated. It occupies an easy and direct route, wholly within the Valley of the Merrimac, and is skirted by thriving manufacturing Villages and cities. Constructed with a heavy double track and equipped in the best manner, it has cost less than \$40,000 per mile, after being in operation for nearly twelve years. The Company has created no debt, and its stockholders have thus had room for intelligent action, with an undivided interest in the result. We have seen it stated that no passenger has ever been injured upon the road.

It must be remembered however that the Concord is a "trunk" road, more than three fourths of all its freight tonnage being received from roads extending north of Concord. Add to this the great manufacturing activity on its own line, and

it is seen how numerous and abundant resources are required for the full success of even an economically constructed and managed road.

#### Lexington and Danville Railroad.

The third annual report of this Company shows that, while their enterprise has been subjected to much embarrassment to avoid financial sacrifice, their work has nevertheless progressed with commendable diligence. The road, which by improvements in location effected within the past year, is reduced to 34 miles in length, is graded for 15 miles south of Lexington; a tunnel through solid rock, and 512 feet length, is completed, while nearly all the buildings necessary for the operations of the road at Lexington are under construction. It is believed that the rails will be laid to the Kentucky river this fall, while the completion of the entire line is anticipated during 1885.

The Lexington and Danville road is of the same gauge as the Southern roads, and will centralize the lines approaching from the South-east, south and south-west,—from Knoxville, Nashville and Memphis, and throw them upon the Covington and Lexington road, terminating at Cincinnati. Although but a short link, it is a most important member of the railway system of Kentucky, and of the system of roads with which she will be approached from adjoining states.

The great difficulty met at every step of the Company's operations, and one which has delayed and still delays the completion of their works, is the want of proper financial aid. The exhibit of the affairs of the Company, as contained in their report, shows them to be over \$28,000 in debt after the expenditure of all their available cash means, and the use of all the county bonds which could be disposed of at any tolerable sacrifice.

Of an issue of \$350,000 of county bonds, the Company have sold \$265,000 at a discount of over 11 per cent., the net proceeds being \$235,473 39.

This amount with \$50,000 from Jessamine County, with under \$103,000 of cash subscriptions and the means borrowed by the directors, have been the whole basis of the Company's expenditures. The payments of the Company have been thus far \$414,410 42.

It was under such a pressure of circumstances that the Company have been forced to let two thirds of their road, at high rates, to reliable contractors, who have agreed to take in payment the balance of the issue of County bonds and the remainder in mortgage bonds of the Company, bearing seven per cent. interest. The Company have already provided for the issue of these bonds to the amount of \$700,000. The bonds created last year, being \$300,000 of six per cent., have not been disposed of, and are now cancelled to be replaced by the new issue. When the money to be raised on these bonds shall have been expended, they will possess a security of the most desirable character, a conviction inevitable upon the inspection of the route, objects and connections of the Company's road.

The crossing of the Kentucky river will be by a suspension bridge of the boldest and most substantial plan. The Company report nearly \$35,000 as already expended upon this work.

#### Greenville and Miami Railroad.

This road has been fully completed for business through trains having been run from Dayton to Indianapolis on Tuesday August 22d.

## Cotton.

Among the leading agricultural products of the United States are Cotton, Indian Corn and Tobacco. They may be said to exercise a vast influence over the fortunes of mankind. The cotton trade amounts to millions of dollars in the aggregate per annum, and gives employment to thousands and tens of thousands of human beings, not only in the Old World but the New. It at present, perhaps, constitutes the greatest bond of peace between Great Britain and the United States. The Southern States of the American Union produce by far the largest portion of the cotton that is grown throughout the world, while England is the leading purchaser and manufacturer. At every symptom of discord between the two countries, the cotton spinners as well as the cotton growers become alarmed. Hence too, the extraordinary efforts that have been made of late years to discover some substitute for the American product. The Board of Trade of Manchester have expended large sums of money in efforts of this kind, but thus far with little success comparatively speaking.

A few years since they engaged a highly accomplished gentleman, Alexander Mackay, Esq., to visit the East Indies, and ascertain, if possible, if any portion of the British possessions in that section of the world could be made more available for the cotton culture than at present—so as to compete with the United States. Mr. Mackay was eminently qualified for the task, having for some time before visited the United States, and resided for a considerable period south of the Potomac. He immediately set forward on his mission, and succeeded in collecting much valuable information, but unfortunately he died on his way home. His papers were subsequently collected and given to the world but they were in a condition so imperfect that the results were far from satisfactory. The relations between the United States and Great Britain have, of late years, been so friendly that the apprehensions of English manufacturers have measurably subsided, and although the hope of discovering a substitute for American cotton has not been wholly abandoned, the prosecution of the enterprise has, in some sense, been postponed.

Meanwhile the cotton culture of the U. States goes on as extensively as ever. The earliest record of an export of cotton from this country, is dated 1747, when seven bags were shipped from Charleston. Thus then, in less than one hundred years the trade has increased to millions of bales per annum. A curious feature in the history of this fabric is, that in 1784, or little more than a half a century ago, a shipment of 71 bags of cotton was made from this country to England, and on its arrival it was seized by the authorities, on the ground that America could not produce a quantity so great.—The average annual yield for the last five years ending 1853, was estimated at 1,000,055 bales. The average yield for the same period ending in 1840, was 1,440,000 bales; and the average annual yield for the like period, which terminated in 1850, was 2,270,000 bales. The total product for 1853, was 3,262,882 bales. In this connection the following comparative statement of the growth will be regarded with interest:—

1824,.....	569,249 bales.
1834,.....	1,254,328 "
1844,.....	2,394,503 "
1853,.....	3,262,882 "

The consumption for the last year named may be thus divided:

Export to Great Britain,.....	1,736,860 bales.
" France,.....	428,728 "
" North of Europe,.....	171,176 "
" Other foreign ports,....	193,636 "
Retained for home use,.....	671,009 "

These facts exhibit results of a truly extraordinary character. They possess the more interest, from the circumstance that cotton is not indigenous to this country, and that the first seed was brought over little more than a century ago. The seed of the Sea Island cotton was originally obtained from the Bahama Islands, in the year 1785. It was first cultivated on Skidaway Island, near Sa-

vanah. The great impulse, however, that was given to the culture, was by the discovery of Whitney's cotton gin. After that period, its growth increased at a most extraordinary rate.—At this moment as already observed, the cotton culture and manufacture give employment to thousands and tens of thousands of human beings, not only in the New World but the Old. There is scarcely an individual in civilized society who is not partly clothed with cotton. It is one of the many products of nature, and has evidently been given by Providence for the especial advantage of man.—*Philadelphia Enquirer.*

## Vermont Central Railroad.

The Boston *Courier* has the following with reference to the present affairs and future prospects of this road. We unite in the belief that the road may be benefitted by good management and by the accession of business likely to be soon received from the Canadas.

The nominating committee appointed by the Stockholders of the Vermont Central railroad at the last meeting in Cochituate Hall, after great and due deliberation, obtained the consent of seven "good men and true" selected to stand as candidates for directors of the corporation, to be voted for at the annual meeting to be held on the 12th September at Montpelier. The names have not yet transpired, but the character of the committee is a sufficient guaranty that the list must be a proper one, and such as will be acceptable to the true friends of the railroad.

The unfortunate Crane matter is in a course of adjustment, and will doubtless be settled within a few days, so far as restitution is concerned; but the injury sustained by the corporation and stockholders, in consequence of the over issued shares, cannot be immediately repaired, as it will require time and future good management to restore lost confidence. A good board of directors, increased business, higher tariffs, and economical expenditures, reciprocity with the Canadas, and the opening of the Prescott and Bytown Railroad, are all favorable features.

There has been recently a reduction of thirty per cent. in the expenses of the Rutland and Burlington Railroad, under the watchful administration of Thomas Thatcher, the new President of the corporation. Systems of retrenchment have also been adopted by the Ogdensburg, Northern, Cheshire, Vermont and Massachusetts and Fitchburg Railroads, which will show well in the annual result, and prove the truth of the adage that a penny saved is equal to a penny earned. Extravagant expenditures on some of the new railroads, and the low tariffs, have been more in fault than any other honest causes in bringing about a depreciation in market value. The many millions of dollars expended in building these important lines should not be allowed to remain any longer unproductive for lack of proper management.

## Northern Railroad Route to the Pacific.

Below we give a copy of a letter from Mr. James Doty who was left by George Stephens at Fort Benton, for the purpose of making meteorological observations during the past winter, ascertaining the fall and depth of snow, etc., etc. The letter possesses great interest in connection with the proposed Railroad to the Pacific over the northern route.

## NORTHERN RAILROAD ROUTE TO THE PACIFIC.

Fort Benton, May 2, 1854.

Your letter of October 3, 1853, has at length reached me, via Olympia, Wallah Wallah, and Cantonment Stevens, and the St. Mary's Valley.

Since I last wrote, several important discoveries have been made, and questions determined in regard to the N. P. R. R., route, all tending to establish the facts that it is eminently practicable for a railroad, and is a good, if not the best, emigrant road from the Mississippi or Missouri to Oregon and Washington Territories. By the survey

of Lieutenant Grover, the Missouri has been found navigable to this point for steamboats.

Captain McLelland has found two practicable railroad passes through the cascade range; and parties are now engaged in opening a road from the Sound to Wallah Wallah, thence to the Coner d'Alene Mission, and thence to St. Mary's Valley, to which point a good wagon-road from the head of navigation on the Missouri has been found by Lieutenant Mullen, who left here on the 18th March, with an ordinary emigrant wagon drawn by four mules, and, crossing the Rocky Mountains, reached Cantonment Stevens on the 30th, having travelled 206 miles, by the odometer, in 12 days.

The winter has been very mild, and but little snow in the mountains on the route. Lieutenant Grover, who left here on the 15th of January, with a dog-train, for Puget Sound, found no snow to the entrance of the pass of the Rocky Mountains, and through the mountains to St. Mary's, the snow averaged but one foot in depth. Thence to Puget Sound, he was compelled to take horses, and pass through in good time and without obstruction from snow. Two men whom I sent with Lieutenant G., returned in February, having walked from St. Mary's in fourteen days. My meteorological records show that the whole amount of snow that fell at this place since November was 30½ inches, and the greatest depth of snow at any one time was 4½ inches.

This is an excellent grazing country. There were large numbers of broken-down horses and mules, and several yokes of oxen, which had come through from Sauk rapids, 1,100 miles to this point left in my charge during the months of October and November. These were pastured on the river bottoms near here; not an animal died during the winter; and on the 15th March the horses and mules were in efficient working condition, and at the present time the cattle are fat, fine beef. The Fur Company's horses and oxen are worked all winter upon such food as they can pick up; in fact, stock in this country needs neither shelter nor food from the hand of man.

The soil in the St. Mary's valley is known to be fertile; and any examinations in this region show that on all the mountain streams their valleys, within sixty miles of the mountains afford soil of good quality and an abundance of wood. As to a profusion of excellent water, any one who glances at the numerous and never failing spring brooks and streams in the country will be convinced that man nor beast ever need perish from thirst. Of nutritious grass there is everywhere an abundance in the river bottoms, where its growth is rank, and the plains, hills, and mountain slopes, which are covered with a luxuriant growth of Buffalo grass.

Timber—white pine, pitch pine, and fir—is abundant and easily procurable. Stone—granite limestone, and sandstone,—is found in the river bluffs and mountains; and what more is needed to render this country "eminently fit" for a railroad or emigrant route, or to be settled by farmers I beg to enquire of those who harp upon "sterile deserts" and "railroad routes through New Caledonia?"

If, as is assumed in a communication to the National Intelligencer of September 5, 1853, the occupancy of a country by the Buffalo is a guarantee of its fertility, then does the Northern railroad route bear the palm of all other routes. From the Shavonne to the Assiniboin camp near Fort Union, from the mouth of Milk river to near this point, we were always "in Buffalo." Indian tradition says they were always here. It is here they remain summer and winter; and their old and deep-worn trails, twelve or fifteen of which may often be seen side by side, traverse this country in all directions through mountain and valley.

The various detached parties of the expedition, and those stationed in the country have crossed and recrossed the mountains from November to May, with trains of pack-mules, and then with wagons, and without hindrance from the snow; and Lieutenant Grover who started with a dog-train and snow-shoes, had to abandon them for want of snow, says the accounts of this country

heretofore given are "a complete humbug," it being in no respect what it was represented, and by almost every one believed to be.

The meteorological register shows that in mildness of winter this country corresponds with the climate of Oregon, or of Europe in the same latitude, rather than with northern Canada or Nova Scotia. At the present time the new grass on the plains affords good feed; in the bottoms the feed was excellent the 15th April and is now luxuriant.

The spring, like the fall and winter, has been dry and warm, the first shower of rain since September 17, 1853, fell on the 21st April, since which we have had several showers—a thunder storm is now passing.

On Monday next I start for our northern boundary and the head waters of the Saskatchewan; and shall examine the passes of the mountain—with little expectations, however, of finding a better route than our wagon road to St. Mary's.—This latter part is not on the extreme sources of the Missouri, but is some distance below the "Three Forks," and is precisely at the point where its mighty river rushes through the "Gate of the Mountains" and starts on its long journey to the ocean. Could Lewis and Clark, in ascending, have left the Missouri at the point where the mountains first touch the river, they would have found an excellent pass to the St. Mary's river, and thence to the Columbia.

To give an idea of our spring weather in latitude 48°, I enclose the readings of the thermometer for April. The mean of the barometer for six months gives, for the altitude of this station, 2,638 feet above the Gulf of Mexico.

#### FORT BENTON, Great Falls of the Missouri.

Thermometer in the shade, in the open air, uninfluenced by reflected heat.

Date.	7,	2,	9,
1854.	a. m.	p. m.	p. m.
April 1.....	42°	52°	45°
2.....	48	70	51
3.....	50	66	49
4.....	59	73	62
5.....	55	62	46
6.....	46	58	34
7.....	54	51	38
8.....	53	61	42
9.....	55	68	51
10.....	63	69	56
11.....	41	67	47
12.....	38	61	40
13.....	47	66	50
14.....	47	70	50
15.....	42	81	58
16.....	64	76	63
17.....	51	73	53
18.....	54	82	65
19.....	52	69	57
20.....	45	66	53
21.....	40	66	46
22.....	50	53	44
23.....	54	51	46
24.....	42	62	51
25.....	50	57	56
26.....	52	64	52
27.....	48	52	48
28.....	48	63	55
29.....	51	69	61
30.....	57	68	58

Sums.....1,498 1,946 1,527

Means.....49° 9 64° 9 50° 9

Height of station above the sea, 2,638 feet.

Latitude 47 de. 9 min. 33 sec.

Longitude west of Greenwich, 109 deg. 33 min. 00 sec.

JAMES DOTY, Observer.

#### The Resources of New Jersey.

The iron ore of this State has attained a world-wide celebrity, and is acknowledged to be the best, in many respects, that has been discovered. The geological survey, which has recently been com-

menced, will undoubtedly reveal many resources of equal excellence. A very valuable deposit, as we announced a few days since, has already been found in Sussex county, and rich marls probably exist throughout the State. In the iron and zinc regions new minerals will perhaps be developed, and possibly other metals discovered, which will be the means of employment and wealth to many.

About a year and a half since, some persons in searching at West Milford, Passaic county, for iron, came across a bed of clay, with the nature of which they were unacquainted. Until recently it has not been improved, on account of ignorance of its value; but a scientific investigation has revealed the fact that it is kaolin, an exceedingly valuable porcelain clay, which is quite scarce. It can be used in the manufacture of porcelain ware, tiles, fire brick, the glazing of cards, soap, paint, &c. The deposit at West Milford is of the purest kind; it is of various colors, white, red, chocolate, and others.

The porcelain manufactured from it will be equal, it is thought, to the best French. The deposit is large, and a company of capitalists is about to be formed, under the name of "Mackapin Kaolin Company" to work it. Similar deposits exist in Japan, China, Saxony, France, England, one at Amboy, discovered by the former geological survey, and one of an inferior kind near Philadelphia. The composition of the clay is alumina and silica, and it is generally formed from disintegrated granite. Many gratifying results, similar to this, will certainly be accomplished by a thorough explanation of the resources of our State.—*Newark Advertiser.*

#### The Business of the Canals.

The business and revenues of the State canals for the present year show a great falling off as compared with the results of a similar period of operation in 1853. We have no doubt that the opponents of our noble state system of improvements will take proper encouragement in view of so gratifying a condition of things, and will duly impress themselves with the belief that the canals will bankrupt our state at a no distant period. So long as their convictions cannot affect the enlargement we wish them every enjoyment of their refreshing faith. Seriously what are the reasons of such a decline in business?

First, there was less surplus for export in the west, comparing the present with former years. The crops are below an average, while the tide of emigration in that direction has increased the domestic consumption.

Second, the foreign demand for some of the chief western products has arisen in the midst of local scarcity; thus giving the producer a participation in the speculative activity of eastern markets. Hence to secure immediate participation in high prices at the east larger quantities than usual of grain have been sent forward by railroad. In great speculations in grain the canal retains the article too long in transitu. By both of the reasons assigned the canals are deprived of their accustomed movement.

Again, while high prices have diverted some shipments of grain from the canals to the railroads, they have in their cases held back large quantities of grain, the holders relying on a still further advance in prices.

Lastly it is proper to admit that until the canal is enlarged, and thereby enabled to move at lower charges for tolls and freights, the railroads are forcing a competition upon it from which they may derive some benefit.

Now let us ask how these causes will develop

themselves in future. The high prices of this year will induce increased culture in the next; after a season of such general drought we may reasonably look for a genial summer in 1855; the tide of emigration to the west, except by those seeking farms there, will be diminished, as in no other occupation but farming, can the west offer such inducements for immigration as for a year or two past: many of those who have lately emigrated west will become producers; and what is the effect? It is probable that the foreign demand will decline, a greater surplus will be offered from the west, the relative domestic consumption being also diminished; prices will fall; holders will press their grain forward to realize something in season, and thereby will such a quantity of wheat be sent forward as to compel shipments by canal on the score of economy. The Railroad freight charges are increasing, the canal will reduce its tolls and the boatmen their freights. Under such a view what will be the burden of the canals in 1855 and thence forward?

#### Railway Traffic Returns.

Great Western of Canada 229 miles.

Earnings for week ending August 25th.

From Passengers.....	\$11,765
" Freight.....	8,168
" Sundries.....	1,061
	\$15,989

Number of Passengers.....7,643

Total since 1st Jan. 1854.....\$679,130

" Passengers ".....222,922

Grand Trunk Line of Canada 292 miles.

Earnings for week ending August 12th.

From 4,696 1st class passengers.....	5,689
" 491 2d ".....	361
" 3,717 tons mdze.....	6,981
" 747 M. feet lumber.....	2,893
" 691 cords firewood.....	1,981
" Mails &c.....	779

Total.....\$17,885

Total from July 1st 1854.....\$104,706

#### Ruttan's Ventilating Car.

We find in the Jersey City Sentinel an account by the editor of a trip in one of these cars upon the Erie road. It appears that this car surpasses, in perfection of ventilation, anything heretofore known upon that road. The editor says:

From the hour we left Jersey City until we reached our destination at Owego, we were never more delighted with a railroad trip during this season of the year. The practical advantages of this system of ventilation were demonstrated almost to perfection—the whole apparatus working like a charm in every department, to the no little delight of all the passengers who were so fortunate as to obtain a seat or standing-place in the car where it was used. There was no dust—no confined air—no undue pressure upon the lungs—no complaints of lassitude and uneasiness among the travellers—all felt as comfortable as if they were seated in a Summer arbor or some rural retreat. While the other cars attached to the same train, without this ventilator, presented a most striking contrast, the seats and passengers covered with dust, smoke and cinders, and the passengers almost suffocated.

On returning East the contrast was so great, that we can find no language to convey the counter-effects of the unventilated car. A literal cloud of dust and smoke, with an unwholesome atmospheric pressure, indescribable in its effects, accompanied us back to Jersey City—it was like being transformed from the Elysian Fields to the deserts of Arabia.

The same principle as applied to railroad cars, has for several years past been extensively applied

to public and private dwellings, not only in Canada, but in various parts of the United States, and has met with unexampled success, as we infer from numerous testimonials from parties who have these ventilators now in constant use, and speak of them in terms of the highest commendation.

We are informed that the expense of this improvement will not exceed \$100 to each car, excepting the stoves, if put in while the car is building.

At the request of the passengers in the ventilated car, an expression of their approval was drawn up, and unanimously signed, as follows:

#### A CARD.

We, the undersigned, now riding in one of the cars of the New York and Erie Railroad, ventilated by Henry Ruttan, Esq., of Cobourg, Canada, are highly delighted with the results of the experiment, and have never before travelled so comfortably and pleasantly, at this season of the year, upon this, or any other Railroad. This day, August 24th, is excessively hot and dusty, the entire train being enveloped in one continuous cloud of dust; and yet, in this car, so admirably does the ventilator perform its work, that the atmosphere about us is entirely free from dust and oppression, while we are continually breathing a pure and invigorating air. We unite, most heartily in urging upon Railroad Companies every where to adopt in their cars this method of ventilation, which is superior in every respect to any other mode which we ever experienced or heard of.

Loring Andrews, New York City.

Luther A. Pratt, Jersey City.

W. Thompson, New York.

J. Thompson, do.

William H. Akins, Ithaca, New York.

Charles G. Miller, Buffalo, New York.

Thomas Hoynes, Chicago, Illinois.

V. W. Baldwin, New York.

James H. Haynes, New York.

Charles T. Candee, New Haven, Connecticut.

F. H. Brown, do. do.

Charles E. Nicholl, do. do.

John A. Bender, Philadelphia, Pa.

E. W. Whitney, New York.

W. P. Ely, Gainesville.

W. H. Northrup, Cincinnati, Ohio.

W. L. Andrews, New York City.

H. N. Squier, do.

Mrs. M. T. Squier, do.

Henry Ketchum, New York.

J. P. Simson, C. Dith,

W. W. Ketchum, J. Dith,

Henry B. Beauner, H. W. Taylor,

John M. Robbins, Joseph C. Wells,

J. F. Merriam, F. V. Hough,

Thos. H. Dith, N. Maston,

E. Wilcox.

The following is a description of the ventilating arrangement.

The receiving cap is placed upon the top of the car in front, through which the air is forced into two conductors, termed "ducts," located at the right and left of the receiving cap on the corners of the car, through flues leading into the water tank, which presents a surface of water of two hundred square feet, beneath the floor of the car. The tank is about twelve inches deep, containing three inches of water, so divided as to cause the air to circulate in a serpentine course, before it reaches the pedestals through which it is propelled into the car, through four apertures on each side of the two pedestals, just above the heads of the passengers, and distributed in four directions, from the centre to each end of the rows of seats. The air is then exhausted by raising the two rear windows. This is the process for the Summer and Fall months.

In the winter, both pedestals are taken up—the aperture of one being covered with a seat, and the other with a ventilating stove, which forms a prominent feature in this invention. The air is then exhausted through the windows or ventilators on the top of the car, and is drawn into a flue on

each side of the car, which runs the entire length, under the passengers feet, and is drawn out at the rear end of the top of the car, through two "ducts" connected with the exhausting cap on top of the car. Thus is the circulation of air equalized during all seasons of the year, which, working as it does upon the principles of propulsion and exhaustion, renders the atmosphere constantly pure, pleasant, and invigorating.

#### New Jersey Locomotive and Machine Co.

On a recent visit to the large and active works of this company we were shown an engine, under construction, which we believe will have the greatest power of any yet built in this country.—It is an engine for the Lackawanna coal road of the six-foot gauge; has six coupled driving wheels supporting a weight of about 83 tons; 18 inch cylinders, 24 inch stroke and 4 feet drivers. The tube surface exceeds 1200 square feet. This unusually large engine it is expected will be finished within a week, when we shall be able to give our readers a full description of its construction and performance.

The New Jersey Locomotive works are also engaged in completing a large order of the heaviest class of engines for the New York and Erie road. While the engines previously built were inside connections, the remaining engines of this order are to be of the New Jersey Works' well known and highly successful pattern of outside connection, giving a better arrangement of the work, and destined in our opinion to make the most effective engines in use on the Erie road.

A large order of freight engines for the Central Military Tract road of Illinois, is also being completed. These engines are inside connected at the request of the parties ordering them, but have received several ingenious modifications of their machinery at the hands of the engineers of the works. Having details of these improvements we shall also be prepared to lay them before our readers as soon as the completion and successful operation of these engines shall furnish the proper occasion.

The New Jersey Locomotive and Machine Co. have earned and ever maintain a high reputation for the excellent character of their work. From no works have we seen more thoroughly built engines delivered, in which every part bore evidence of a liberal expenditure of labor and material.—The model of these engines is well known and approved of by engineers for its strength and durability and it is already copied in greater or less detail by other builders. In actual practice, the durability of these engines is remarkable. The retention of prime working condition by some of them on new roads has elicited the strongest praise.

It is gratifying to know that the ambition of this company to maintain an establishment for the production of uniformly first class work is so well appreciated and so liberally sustained by our oldest and best railroad companies. The great lines of roads in New York, Pennsylvania, New Jersey and in several other States are largely supplied from these works, and in each case with marked satisfaction by reason of the efficiency, durability and economy of their engines.

Within a short time the company have found it for the convenience of their patrons to establish an office in New York. They have accordingly located the business department of their Vice

President's office at No. 63 Beaver street, quite convenient to Wall street. C. W. Elliott, Esq., the Vice President of the company, remains at this office to attend to the company's interests in this city.

From the variety, novelty and excellence of the engines now constructing at this Company's works in Paterson, we shall have occasion to refer to them again.

#### Erie Railroad.

The following is a copy of the statement put forth by the Erie Railroad company, under date of Sept. 4th.

OFFICE NEW YORK & ERIE RAILROAD CO.  
NEW YORK, Sept. 4, 1854.

The Directors observe with deep regret the great depression in the market value of the stock and bonds of the Company, and the almost total loss of its credit, so much so that the Board have been compelled to resort to very extraordinary measures to fulfil the obligations of the Company.

The Directors have not lost confidence themselves in the ultimate success of this Great Enterprise, and are confident that the plans they will adopt for relieving the Company from its present embarrassments, and providing for the Income Bonds due in February next, will meet with the approval of those interested.

At an early day their plans will be presented to the public, with a report of the business and condition of the Company, which the Board confidently believe will be satisfactory.

The operations of the road during the nine months of the present fiscal year, commencing October 1st, 1853, and ending June the 30, 1854, down to which time full accounts are made up, have been as follows:

Transportation Earnings,.....	\$3,958,298 42
Transportation Expenses, including	
Interest on the Funded and Floating Debt,.....	3,886,776 78

Surplus.....\$616,521 64

Which shows a profit of \$616,521 64, equal to 8 per cent. per annum upon the capital of the Company, over and above all expenses of every kind, and the interest and commission which have been chargeable upon its entire funded and floating debt.

Notwithstanding the sickly season through which we have just passed, and the depressed state of the business of the country, and the consequent effects upon the business of the Road, the Board entertains the opinion that the returns when rendered for the last quarter of the year will present a net gain equal to the average of three previous quarters.

The brief statement is now made, in advance of a more full report, in answer to numerous anxious inquiries concerning the business of the road, and in the belief that something of the kind is necessary to prevent timid holders of the stock and the bonds from unnecessarily sacrificing their property.

Published by order of the Board,  
HOMER RAMSDELL, President.

The above is very well as far as it goes; but, unfortunately it fails to meet the emergency, and had better been withheld, we think, than published. Any person who has by him a statement of the earnings of the company for the present year, would have no difficulty in figuring out a similar result. It is not what the road is earning that the public want to know, so much as what it owes—the objects for which the floating debt has been created—the plans proposed for its liquidation—the present and prospective necessities of the company. What is wanted is, a thorough insight into its whole interior organization, so that

the public may feel that they have at last touched bottom. Until the company are prepared to do this, all partial and fragmentary statements only create suspicion and distrust, instead of allaying them. Such will be the effect of the above statement. Let us have the whole story, or nothing.

#### Improvements in Mobile River.

The concentration of Railroad enterprise upon Mobile is likely to elevate it to a new rank among the cities of the South. Occupying a central position on the Gulf of Mexico, and being at the extremity of three magnificent systems of northern and north-eastern railroads, and at the outlet of the natural drainage of over 40,000 miles of productive territory, it is destined so soon as these advantages are completed, improved and fully developed, to assume a commercial importance corresponding with our cities of first rank. The Mobile and Ohio road, connecting with Cairo, St. Louis, and Chicago, and by eastern branches to Nashville, Cincinnati and Lake Erie; the Alabama and Tennessee road, ultimately terminating at Mobile, and extending on the north to the roads forming the great interior lines from the north to the south; the roads leading to Charleston and Savannah; and the Mobile river, with its great commercial tributaries, are together the elements of greatness by which Mobile will advance.

Uncompleted as are all of these railroads and with an unimproved river navigation, Mobile is increasing faster in wealth and numbers than any other southern city.

It is known that active efforts and liberal outlays are being made for the improvement of Mobile river and Bay. These improvements which must benefit the whole interests of Alabama, are, strange to say, opposed by citizens of Baldwin county, directly opposite Mobile. The occasion of this opposition which, it is not supposed, will affect the progress of the improvements, forms an opportunity for stating the condition of the river, and the means by which it is expected to increase its capacity. The *Alabama Planter* in a recent number gives the following interesting account of the habits and condition of the river.

#### IMPROVEMENTS OF MOBILE RIVER.

An attempt has been made by the citizens of Baldwin to restrain the citizens of Mobile from completing the works now on foot for improving Mobile river, and consequently the Bay. Let us look a moment into the merits of the case.

The causes of the division of the river into two branches at its mouth are plain: 1st, the slight inclination of the surface of the river; 2d, the resistance of the waters at the bay; 3d, the too great width of the river towards the mouth. The waters becoming less deep by the expansion, and the resistance to the motion increasing with this expansion, the velocity will be diminished and permit the sediment to be deposited at the bottom, which leads to the formation of a bar. This accumulation of deposit in the mouth of the channel steadily increasing causes the water of the river to turn towards the sides, and thus two channels are formed with a sand bank between them, which finally becomes an island. The channels are indebted for their formation and depth, to the momentum of the water that passes through each. This deposit is called Delta, from its resemblance in shape to that letter of the Greek Alphabet. Pinto's Island, in the mouth of the Mobile river, has been made in this way. And even in the eastern channel on the other side of Pinto's Island, a similar process has been going on, and a sand bank has been formed near the middle of that channel. It is this eastern channel that has been

contracted, or is now partially closed, for the purpose of throwing some of its water into the main channel of the Mobile river, which has lost its requisite scouring power by the withdrawal of its water through the several outlets.

The depth of the eastern channel was very irregular, principally along the eastern branch, therefore vessels taking the ground must, if heavily loaded, be liable to strain, consequently occasioning much additional wear and tear; besides under these circumstances the consequences become more serious to property. The narrowing of this eastern channel and giving it a proper form and direction, a matter of primary importance to all those who are in the habit of navigating the channel, is tantamount to deepening it, from the circumstance that at those parts where the width is least the water is deepest.

The natural result of the formation of the island being the raising of the bed of the river above and below the island, a decrease of depth takes place at both these points. It must, therefore, appear evident to any reflecting mind, that, to secure and preserve the navigable depth of the river, it is necessary to close the channel that is not in the line of the course of the river.

The depth of water above and below an island or sand bank, or, in other words, the least depth of water in the channel, constitutes the navigable depth of the channel. Of what use is it for the purpose of navigation to have a channel possessing great breadth of several branches, if the main desideratum, a sufficient navigable depth be wanting?

There is a very important distinction, which ought not to be overlooked, between the available and the non-available channel of a river, and any improvement undertaken with the view of benefitting the available or main channel, though it may be at the expense of the non-available channel, must certainly be justifiable.

The Mobile River is public property and no portion of the water should be allowed to be diverted from it by either nature or art, the effect of which would in any way be prejudicial to its navigation. The river is formed by a union of the waters of the Alabama and Tombigbee rivers, and all the water below that junction, which leaves the main channel and passes off through the outlets, is, in fact, and should be considered, a legitimate portion of that property which the public has in the river, and over which it ought to retain undisputed control, so that it may at all times exercise the power to regulate and dispose of it in any way that may be deemed most advantageous in securing a permanent and increased navigable depth to the Gulf.

Suppose that by any accident of flood or weather, or by the sinking of vessels or the deposit of logs, sediments &c., the main channel of the river were so blocked up, or obstructed, that most of its water would be diverted into the Spanish river; would the city of Mobile be prohibited by the principle of non-interference with nature, from using all the means in its power to recover the water that had been diverted from the main channel and to restore the previously existing depth, or to improve that channel so as to secure a still greater depth, if possible? Cannot the city of Mobile unite in a single channel the water of the Mobile river, which has been divided by Pinto's Island, in order to restore the former depth above and below the island, and preserve a greater scouring power down the bay?

#### Fuel for Locomotives.

Under the present high prices of wood, already \$8 per cord for Southern pine, our Northern roads are looking with increased interest to the employment of Cumberland, or other description of bituminous coal. The New Haven road has for several weeks been running its freight trains with this description of coal, burned in one of Winans' large engines. Another engine from the same builder is expected upon the road at an early day.

#### Working Descending Grades.

"Sentinel," of the *Courier and Enquirer*, is writing some thrilling sketches of Railway incidents, seasoned to the popular taste. In a recent life-picture, he describes the descent of a heavy freight train on the seven miles of the Erie road between "Gulf Summit" and Deposit. So far as he shows how powerless are the means relied on, under such circumstances for governing the descent of the train, we can endorse the truth of his description. He has furnished us with an occasion, therefore, (which, had we waited until winter, we should only have found in some bad accident) for saying a few words on the adaptation of locomotive power for working steepgrades.

The grade of the Erie road at the point named, is 58 feet per mile, for seven miles. The Baltimore and Ohio road, has a grade of twice the pitch for twice the length, viz: 116 feet per mile for 15 miles. In winter, "Sentinel," however, would find meagre materials for a wild picture of a descent upon the Baltimore and Ohio grade. Yet every one would suppose that it would be absolutely dangerous at all times. We will state wherein the security in working the latter grade consists.

The Erie freight engines are adapted to exert a moderate power at a high speed. The machinery is so proportioned as to give a natural velocity with usual trains, of from 20 to 30 miles an hour, while most of those engines are able to run much faster. Having but moderate adhesion, with such quick susceptibility of motion, these engines, upon a bad down grade, are not able to act as a sufficient check to the train. Going up a grade, they are nearly stopped by a comparatively moderate load; going down, they are in danger of being crushed by the gravity of the train.

The Baltimore and Ohio trains on the contrary, are proportioned for enormous power at slow speed. Their ordinary load up 45 feet grades is from twice to three times that drawn upon similar grades on Northern and especially on New England roads.

The usual speed of these engines is but about 12 miles an hour. While they have the power to control their speed under any pressure likely to be exerted by their train, it would also be difficult to drive them up to any such speed as 30 miles an hour without developing a friction, from all parts of their machinery, of great retarding power. The moving machinery of the Baltimore engines must work nearly twice as fast, for a given speed of train, as that of the Erie Engines. With all this, and the 28 to 30 tons of adhesion and large sand boxes of the Baltimore stock engines, they would be very unlikely to be urged at an unsafe speed, down any grade, by the pressure of any train which they could draw up the same grade. Our readers of technical tastes can compare for themselves.

#### Erie engines Balt. & Ohio

Diam. of cylinder...	18 ins.	19 to 20 ins.
Stroke of Piston....	20 "	22 "
Diam. of Driver.....	62 "	43 "
Adhesive weight....	21 tons.	29 tons.

While a person having no particular knowledge of the nature of chilled iron, would suppose that a tire of such material would have less adhesion upon an iron rail than would a wrought iron tire, it deserves to be said that the Baltimore engines are provided entirely with chilled cast iron tires; these by ample comparisons being found to have equal adhesion with wrought iron tires, while they

have a most decided merit of economy in their superior hardness and ease of application.

## American Railroad Journal.

Saturday, September 9, 1854.

### Stock and Money Market.

The past has been an exciting week in the share market. The great fluctuation has been in *Erie*. The following table will show the extent of the fluctuations, for the week, of some of the leading stocks.

	Aug. 30.	Aug. 31.	Sept. 1.	Sept. 2.	Sept. 3.	Sept. 4.	Sept. 5.	Sept. 6.
<i>Erie</i> .....	37	35½	82	29	32	34		
<i>N.York Central</i> ..	89	88	86	85¼	88	88¼		
<i>Mich'g'n South-ern</i> .....	89	90	89		90			
<i>Michigan Centr.</i>			83	84	84			
<i>Harlem</i> .....	32½	32			31			
<i>Reading</i> .....	68½	68½	67	66½	68	68		
<i>Cleveland and Toledo</i> .....	68½	69	68	68½		68		
<i>Hudson River</i> ..	41½	40	35	36	38	37		

The principal interest in the street attaches to *Erie*, the condition of which exerts a powerful influence over the whole market. It is stated that the company have made arrangements for their liabilities immediately pressing, through the assistance of Messrs. Drew & Vanderbilt. We do not, however, expect to see any great improvement in this stock till the company shall put forth some well digested and feasible plan for the payment of its income bonds, and the restoration of its credit. We repeat what we have already said, that the financial success of the road depends upon such a step. The road can be made to pay seven per cent. on its cost, and can be placed in a position that will carry its securities to their former figures, and enable the company to raise all the money it needs without the aid of individual names. We state this as the opinion of the most careful and cautious of our moneyed men, and who have all along agreed with us in opinion. Nothing is wanting but good management to make this road all that it has been supposed to be.

The railway earnings for August as far as have been received are favorable. Those for the Hudson River and Cleveland and Columbus show a small increase over 1853. We presume such will be the case with most if not all our companies. When the universal prevalence of the cholera, the almost entire cessation of pleasure travel, consequent upon the "hard times," and the general stagnation of business compared with the greater activity which prevailed last year, are considered, the result, showing that railroads not only hold their own, but are going ahead, while everything else presents only half the bulk of last year, is highly favorable. However our people may have been disappointed in other matters, certainly they cannot charge their disappointment to our railroads, which are proving all that was claimed for them.

There is some foreign demand for railroad bonds; mostly of roads in operation; none for new works. So long as unquestioned seven per cent. bonds of old roads are selling at 80, there is not much chance for new projects. The market must first be cleared of the stock on hand. Money is in active

## Railway Share List.

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence... Maine.	150	1,538,100	2,973,700	5,973,700	254,743	113,520	none	86
Androscoggin and Kennebec.. "	55	824,863	1,043,540	2,036,140	177,003	80,053	none	82
Kennebec and Portland..... "	72	1,073,673	1,439,694	2,520,981	168,114	100,552	none	42
Port., Saco and Portsmouth.. "	51	1,355,500	123,884	1,459,384	208,669	6	94½	
York and Cumberland..... "	20	285,747	341,100	713,605	23,946	11,256	none	24
Boston, Concord and Montreal. N. H.	98	1,649,278	622,200	2,540,217	150,538	79,659	none	17
Concord .....	35	1,485,000	none.	1,485,000	305,805	141,836	8	105½
Cheshire .....	54	2,078,625	720,900	3,002,094	287,768	55,266	5	85
Northern .....	82	3,016,634			328,782	163,075	5	42
Manchester and Lawrence.... "	24	717,543					6	70
Nashua and Lowell..... "	15	600,000	none.	651,214	132,545	51,513	8	104½
Portsmouth and Concord.... "	47			1,400,000			none	
Sullivan..... "	26			673,500			none	10
Connecticut and Passumpsic.. Vt.	61	1,097,600	550,000	1,745,516			none	20
Rutland .....	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	9
Vermont Central..... "	117	3,500,000	3,500,000	12,000,000				4½
Vermont and Canada..... "	47	1,500,000		1,500,000			Leased to the Vt. C.	78
Western Vermont..... "	51	392,000	700,000				Recently opened.	none
Vermont Valley .....	24						none	
Boston and Lowell..... Mass.	23	1,880,000	206,190	2,044,536	434,599	114,098	6	81½
Boston and Maine..... "	83	4,076,974	150,000	4,111,345	803,024	418,858	8	100½
Boston and Providence..... "	55	3,160,000	402,326	3,579,041	509,326	226,639	6½	77
Boston and Worcester..... "	69	4,500,000	590,541	4,850,754	587,219	413,289	7	95½
Cape Cod branch..... "	29	421,950	180,000	633,906	68,942	26,412	5	40
Connecticut River..... "	52	1,591,110	286,863	1,802,244	258,220	102,098	4	52
Eastern .....	58	2,850,000	1,192,975	3,120,391	620,810	310,875	6	61½
Fall River..... "	42	1,050,000	6,208	1,050,000	294,133	126,589	8	93
Fitchburg..... "	67	3,540,000	191,500	3,716,870	626,659	214,633	6	87½
New Bedford and Taunton... "	20	500,000	none.	529,964	188,442	46,839	7	117
Boston and New York Central Old Colony..... "	74	1,159,228	953,370	2,221,068	90,315	35,214	none	50
Taunton Branch..... "	45	1,964,070	295,038	2,293,534	374,897	122,866	none	99
Vermont and Massachusetts.. "	11	250,000	none.	307,186	159,738	21,490	8	
Worcester and Nashua..... "	77	2,233,939	1,139,615	3,207,818	244,323	13,144	none	11½
Western .....	46	1,140,000	194,445	1,342,593	182,398	81,807	5	52½
Stonington..... R. I.	155	5,150,000	5,319,520	9,953,258	1,525,224	746,786	7	98½
Providence and Worcester.. "	50		467,700		240,572	110,892		65
Canal..... Conn.	40	1,467,500	300,000	1,791,999	291,417	120,892	6	80
Hartford and New Haven... "	45	922,500	500,000	1,400,000			4	65
Housatonic..... "	72	2,350,000	800,000	3,150,000	639,529	294,269	10	119
Hartford, Prov. and Fishkill.. "	110			2,500,000	329,041	168,902	none	
New London, Wil. and Palmer "	50			In progress	69,629		none	
New York and New Haven... "	66	553,861	800,000	1,511,111	114,410			
Naugatuck .....	61	8,000,000	1,641,000	4,978,487	860,713	428,173	7	
New London and New Haven. "	62	926,000	440,000				8	
Norwich and Worcester..... "	55	750,500	650,000	1,380,610	Recently opened.		none	40
Buffalo and New York City.. N. Y.	54	2,121,110	701,600	2,596,488	267,561	116,965	4	45
Buffalo, Corning and N. York. "	91	900,000	1,550,000	2,550,500	Recently opened.		none	
Buffalo and State Line..... "	132			In progress			none	
Canandaigua and Niagara F. "	69	879,636	872,000	1,921,270	Recently opened.			130
Canandaigua and Elmira..... "	50			In progress				
Cayuga and Susquehanna.... "	47	425,509	582,400	987,627	76,760	39,360	none	
Erie, (New York and Erie).... "	35	687,000	400,000	1,070,786	74,241	23,496	none	
Hudson River..... "	464	10,000,000	24,003,865	33,070,863	4,318,962	1,800,181	7	36
Harlem .....	144	3,740,515	7,046,395	10,527,654	1,063,659	388,783	none	42
Long Island .....	130	4,725,250	977,463	6,102,935	681,445	324,494	4	81
New York Central .....	95	1,875,148	516,246	2,446,391	205,068	44,070	none	22½
Ogdensburg (Northern)..... "	504	23,085,600	10,778,823	33,859,423				89½
Oswego and Syracuse..... "	118	1,579,969	2,969,760	5,133,834	480,137	195,847		11
Plattsburg and Montreal.... "	35	350,000	206,000	633,598	92,353	46,072		
Rensselaer and Saratoga.... "	23	174,042	181,000	349,775	Recently opened.		none	
Rutland and Washington.... "	25	610,000	25,000	774,495	213,078	96,737		
Saratoga and Washington.... "	60	850,000	400,000	1,250,000	Recently opened.			
Troy and Rutland..... "	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Troy and Boston..... "	32	237,690	100,000	329,577	Recently opened.			33
Watertown and Rome..... "	39	430,936	700,000	1,043,357	Recently opened.		none	
Camden and Amboy..... N. J.	96	1,011,940	650,000	1,693,711	225,152	116,706	8	92
Morris and Essex..... "	65	1,500,000		4,327,492	1,888,385	478,413	10	148
New Jersey..... "	45	1,022,420	128,000	1,222,420	149,941	79,257	7	
New Jersey Central..... "	31	2,197,840	476,000	3,245,720	603,942	316,259	10	131
Cumberland Valley..... Penn.	63	1,679,935	1,500,000	3,195,222	365,833	179,210	7	95
Erie and North East..... "	56	1,184,500	18,000	1,265,143	118,617	76,890	5	
Harrisburgh and Lancaster.. "	20	600,000		750,000	Recently opened.			125
Philadelphia and Reading.... "	36	830,100	713,227	1,702,528	265,327	106,320	8	55
Philad., Wilmington and Balt. "	95	6,656,332	10,427,626	17,141,987	2,480,626	1,251,987	7	68
	98	5,000,000	2,399,166	8,067,235	868,033	541,769	5	69

## Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central.....Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	85
Philadelphia and Trenton....	30	.....	.....	.....	.....	.....	.....	.....
Pennsylvania Coal Co.....	47	.....	.....	.....	.....	.....	.....	.....
Baltimore and Ohio.....Md.	381	13,118,902	5,677,103	22,254,338	2,033,420	798,193	7	494
Washington branch.....	38	1,650,000	.....	1,650,000	348,622	216,237	8	.....
Baltimore and Susquehanna..	57	.....	.....	.....	418,673	152,536	.....	.....
Alexandria and Orange.....Va.	65	.....	.....	In prog.	.....	.....	.....	.....
Manassas Gap.....	27	.....	.....	In prog.	.....	.....	.....	.....
Petersburgh.....	64	769,000	173,867	1,163,928	227,593	72,370	7	77
Richmond and Danville.....	73	1,372,324	200,000	In prog.	.....	.....	.....	70
Richmond and Petersburg.....	22	685,000	.....	1,100,000	122,861	74,113	none	40
Rich., Fred. and Potomac.....	76	1,000,000	503,006	1,581,238	254,376	113,256	7	100
South Side.....	62	1,357,778	640,000	2,106,467	62,762	.....	.....	.....
Virginia Central.....	107	1,673,684	469,150	2,392,215	210,052	99,077	10	50
Virginia and Tennessee.....	73	2,650,091	707,958	3,545,256	109,268	42,736	none	98
Winchester and Potomac.....	32	180,000	120,000	416,532	89,776	.....	12	.....
Wilmington and Raleigh.....N.C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	.....
Charlotte and South Carolina..S.C.	110	.....	.....	In prog.	.....	.....	.....	.....
Greenville and Columbia.....	140	1,004,281	500,000	In prog.	.....	.....	.....	.....
South Carolina.....	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester..	.....	.....	.....	In prog.	.....	.....	.....	.....
Georgia Central.....Ga.	191	3,500,000	418,187	3,465,879	986,074	535,608	8	116
Georgia.....	211	4,000,000	1,214	.....	934,424	456,468	7 1/2	.....
Macon and Western.....	101	1,013,088	163,000	1,277,334	278,739	149,960	9	101
Muscogee.....	71	.....	.....	In prog.	59,590	21,731	.....	.....
South Western.....	50	586,887	150,000	743,525	129,395	71,535	8	.....
Alabama and Tennessee River..Ala.	55	.....	.....	In prog.	.....	.....	.....	.....
Memphis and Charleston.....	93	776,259	400,000	In prog.	.....	.....	.....	.....
Mobile and Ohio.....	33	879,868	.....	In prog.	.....	.....	.....	.....
Montgomery and West Point..	88	688,611	.....	1,330,960	173,542	76,079	8	.....
Southern.....Miss.	60	.....	.....	.....	.....	.....	.....	.....
East Tennessee and Georgia..Tenn.	80	835,000	541,000	In prog.	.....	.....	.....	.....
Nashville and Chattanooga....	125	2,093,814	850,000	In prog.	.....	.....	.....	.....
Covington and Lexington.....Ky.	73	1,430,150	900,000	In prog.	.....	.....	.....	.....
Frankfort and Lexington.....	29	357,218	.....	.....	87,421	44,250	.....	63
Louisville and Frankfort.....	65	.....	.....	584,902	.....	.....	.....	80
Maysville and Lexington.....	.....	.....	.....	In prog.	.....	.....	.....	45
Cleveland and Pittsburgh.....Ohio.	100	1,979,100	1,142,200	3,279,908	432,682	267,278	10	59
Cleveland and Toledo.....	147	2,000,000	1,600,000	.....	.....	.....	.....	71 1/2
Cleveland, and Erie.....	95	.....	.....	.....	.....	.....	.....	.....
Cleveland and Columbus.....	135	3,027,000	408,200	3,655,000	777,793	483,454	12	100
Columbus, Piqua and Indiana..	46	.....	.....	2,000,000	.....	.....	.....	.....
Columbus and Lake Erie.....	61	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ham. and Dayton..	60	2,100,000	500,000	2,659,653	321,793	200,967	.....	.....
Cincinnati and Marietta.....	.....	.....	.....	In prog.	.....	.....	.....	62
Dayton and Western.....	40	310,000	550,000	925,000	Recently opened.	.....	.....	75
Dayton and Michigan.....	20	.....	.....	In prog.	.....	.....	.....	.....
Eaton and Hamilton.....	36	.....	.....	.....	.....	.....	.....	56
Greenville and Miami.....	31	.....	.....	.....	.....	.....	.....	.....
Hillsboro.....	37	.....	.....	In prog.	.....	.....	.....	.....
Little Miami.....	84	2,668,402	482,000	3,169,733	667,559	352,133	10	.....
Mansfield and Sandusky.....	.....	900,000	1,000,000	1,855,000	.....	.....	.....	.....
Mad River and Lake Erie.....	167	2,387,200	1,767,000	4,110,148	540,518	118,401	.....	77 1/2
Ohio Central.....	57	.....	.....	In prog.	.....	.....	.....	79
Ohio and Mississippi.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio and Pennsylvania.....	187	1,750,700	2,450,000	.....	Recently opened.	.....	.....	.....
Ohio and Indiana.....	.....	.....	.....	In prog.	.....	.....	.....	.....
Scioto and Hocking Valley....	44	750,000	300,000	.....	Recently opened.	.....	.....	.....
Columbus and Xenia.....	54	1,291,700	26,000	1,310,062	314,434	168,612	10	.....
Evansville and Illinois.....Ind.	31	.....	.....	In prog.	237,506	.....	.....	.....
Indiana Central.....	.....	.....	.....	.....	.....	.....	.....	.....
Indiana Northern.....	131	.....	.....	.....	.....	.....	.....	.....
Indianapolis and Bellefontaine	83	.....	.....	.....	Recently opened.	.....	.....	.....
Indianapolis and Cincinnati..	90	1,128,486	1,289,000	1,869,332	Recently opened.	.....	.....	90
Lafayette and Indianapolis.....	62	.....	.....	.....	.....	.....	.....	.....
Madison, Indianapolis & Peru..	159	2,647,700	1,241,300	2,400,000	516,414	268,075	10	.....
Terre Haute and Indianapolis..	72	632,387	663,100	1,353,019	105,944	71,446	4	.....
Rock Island and Chicago.....Ill.	.....	.....	.....	.....	.....	.....	.....	.....
Chicago and Mississippi.....	135	2,400,000	4,000,000	4,600,000	.....	.....	.....	.....
Illinois Central.....	.....	.....	.....	.....	.....	.....	.....	.....
Galena and Chicago.....	92	.....	500,000	In prog.	473,548	286,152	.....	.....
Michigan Southern and Ind. N.Mich.	315	.....	3,741,564	7,276,616	1,200,922	586,929	17	90
Michigan Central.....	282	.....	3,977,563	8,618,505	1,145,598	582,816	8	85
.....Mo.	38	.....	non	In progress	Recently opened.	.....	.....	.....

request, but is sufficiently abundant for the purposes of a healthy trade.

## Our Imports.

We published recently a statement of the revenues of the national government for 1853 and 1854. From these revenues the amount of our imports has been estimated. The means of estimation is the assumption that the duties paid are 25 per cent. of the dutiable imports. A cotemporary, by estimating the imports as four times the revenues of 1854, has given popular currency to the opinion that our imports for this year exceed those of 1853 by \$47,000,000. But as a large part of our revenues are derived from land sales, and as these are several millions more in 1854 than in 1853, it is found, as we last week exhibited by an extract from the *Economist*, that the increase of duties received during the last official year, over those of the previous year, corresponded with an increase of importation of but \$21,000,000. The figures quoted by us are admitted as correct, whence we infer that the balance of our national Exchanges are more favorable than is generally supposed.

## Virginia and Tennessee Railroad.

The business of this road is increasing. The *Abingdon Democrat* states that the first six months of this year the receipts are about \$70,000 against \$40,000 during the same month last year. It will pay 6 per cent. on the finished portion of the road this year.

## Northern Cross Railroad of Illinois.

The Quincy *Whig* announces that an additional force of laborers has been put upon this road between Quincy and Clayton, and the work is rapidly progressing. Track-laying will be commenced very shortly, and the contractors for that portion of the work design keeping pace with the progress of the grading and superstructure.

The Northern Cross road, it will be remembered, is the continuation of the Aurora extension and Central Military Tract roads and will give to Chicago an additional continuous line of railroad to Quincy on the Mississippi, opposite the Hannibal and St. Joseph road of Missouri. It is one of five great roads, to connect Chicago with the Mississippi river at as many different points distributed along the whole western boundary of Illinois.

## Railroad from Peoria, Illinois, to St. Louis.

W. G. Wheaton, Esq. the engineer of the Peoria and Bureau Valley road has completed a survey of a road from Peoria, to Jacksonville, there to connect with the Jacksonville and Alton road to St. Louis. The distance between Peoria and Jacksonville is 75 3/4 miles. This line, with its extensions to Galena is expected to give to St. Louis the shortest route to the Upper Mississippi. It will also offer an additional route to Chicago, 35 miles longer from St. Louis than by the Chicago and Mississippi road. Passing through Jacksonville, Peoria and Peru, this line would command a large local support.

## Ogdensburg Railroad.

It is stated that W. T. Eustis, Esq., the Treasurer of the Ogdensburg, has resigned, and H. M. Holbrook, Esq., has been chosen to fill the vacancy. It is also stated that George M. Dexter, Esq., has resigned the Treasurership of the Vermont Central, to take the office of Superintendent of the Boston and Lowell Railroad.

**Engines on Vermont Central Railroad.**

In speaking, recently, of the condition of this company, we alluded to its unfortunate and expensive system of motive power. We this week take occasion to illustrate the character and extent of this department by a special statement of the dimensions and construction of all the engines on the road. The chief points in this list indicating an inferior adaptation of power are as follows.

The engines are of too great variety of patterns.

The larger part of the engines are inside connected, and have involved, thereby, extraordinary expenses for renewing their cranks which can never be made certainly sound. During the last winter twelve cranks were broken and renewed.

The tires and driving wheels of the engines have suffered severely. 76 tires were burst and 43 driving wheel centers broken during the winter. The use of wrought iron tires, shrunk so as to strain the wheels very much, was persisted in, while a proposition was before the agents of motive power department, in which the agent of the chilled tire offered to apply it and pay any damages incurred by its failure. This offer was not accepted, although the chilled tires were running upon connecting roads without failure. It is believed the road has saved nothing by this refusal on the part of its agents, as its trains have been

subjected to innumerable accidents and delays and the expense of repairs of locomotives has been enhanced to an extraordinary amount, equal to nearly \$2,500 for the year for every engine in use on the road.

Again, the road has too large a number of high-wheeled engines having very high boilers and a very short stroke of piston, by which they rack and strain the track and themselves, at the same time. For an interior road with long grades of 50 feet, to run heavy engines with six feet drivers and but 18 inch stroke is opposed to all economy.

Lastly, with the exception of the Baldwin eight-driver engines, none of the freight engines are of sufficient power to conduct a heavy freight business with economy over 50 feet grades.

This circumstance last named, combined with the variety of patterns of the engines in use, has loaded the Vermont Central road with an equipment 50 per cent. greater than necessary for its past amount of business. It will be seen that the present number of engines is forty-two.

Leaving out the large Baldwin engines, none of the others take, as an average load, over 15 freight cars upon the 45 feet grades. On the Baltimore and Ohio road 30 cars are a regular and 45 cars a maximum load of a single engine over similar grades. The Vermont Central Road derives little

advantage from the powerful Baldwin engines as one or two are used as "pushers" and three or four of the remainder have been for a long time disabled by being burnt at the Northfield fire.

To show the employment of these engines it should be said that the Vermont Central and Canada roads, both operated as one, are 156 miles long; Northfield, the central station for engines, being 67 miles from the lower end of the road and 89 miles from the upper end.

The business of the road requires two through passenger, and two through freight trains each way daily, besides one freight train from Northfield to Windsor. In summer, an express passenger train in addition is run once each way over the road daily.

The road ought to be worked in the busiest seasons, with 12 freight and 10 passenger engines, with an allowance of 8 or 10 engines for repairs, spare engines, assistants, &c. With engines of proper power, this number would accomplish a greater movement than has ever been effected over the Vermont Central Road.

It is not expected to benefit the road under notice by these remarks, but its unfortunate and extravagant equipment, properly understood, may become a useful illustration to other companies, showing them what, under given conditions of grades and business, they ought not to adopt.

SURVEY OF MOTIVE POWER.  
Vermont Central R. R.

Names.	Builder.	Date rec'd.	Diameter of Cylinder.	Stroke.	Length of Ports.	Width of Ports.	Width of Exhaust.	Diam. of Drivers.	No. Drivers.	No. Trucks.	Length of Tubes.	Diam. of Tubes.	No. Tubes.	Diam. of Boiler.	Diam. of Blast.	Length of Grates.	Width of Grates.	Depth of Furnace.	W't in tons.
			in.	in.	in.	in.	in.	feet.			ft. in.	in.		in.	in.	in.	in.	in.	
Gov. Paine	M. W. Baldwin	Aug. 1849	17	20	10	1 1-2	2 1-2	6 1-2	2	4	12.6	2	154	40	2 1-2	38	47	54	26
Vermont	"	May 1851	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	25
Huron	"	"	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	25
Oregon	"	"	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	"
Superior	"	"	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	"
St. Lawrence	"	June	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	"
Michigan	"	"	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	"
Key Stone	"	Aug. 1849	17	22	10	1 1-2	2 1-2	8 1-2	8	0	13.6	2	112	"	2	37	42	50	"
Burlington	"	Feb'y 1851	15	20	10	1 1-2	2 1-2	4 1-2	4	4	11.6	2	126	38	1 7-8	35	42	44	20
Erie	"	"	15	20	10	1 1-2	2 1-2	4 1-2	4	4	11.6	2	126	"	1 7-8	35	42	44	20
Saguenay	"	"	15	20	10	1 1-2	2 1-2	4 1-2	4	4	11.6	2	126	"	1 7-8	35	42	44	20
St. Albans	"	Jan'y 1851	13	24	9	1 1-4	2 1-2	5	4	4	11.6	2	126	"	1 7-8	35	42	44	18
Dutchman	"	1848	10 1/2	16	7	1	2	4 1-2	2	4	8	2	116	36	1 3-8	30	38	38	9
Adams	"	1848	5 1/2	14	8 1/2	3-4	3-4	4	4	4	6	1 1/2	45	22	1	18	18	24	5
John Smith	Hinkley	Oct. 1850	16	20	10	1 1-8	2 1-2	5 1-2	4	4	10.6	2	186	40	2	38	48	45	22
Wincoakl	"	June 1848	16	20	10	1 1-8	2 1-2	4 1-2	4	4	10	1 3/4	125	"	2	38	48	45	23
Iroquois	"	Nov. 1850	16	20	10	1 1-8	2 1-2	4 1-2	4	4	10	1 3/4	125	"	2	28	43	46	21
Cascadnac	"	June 1849	15	18	9	1	2 1-2	5 1-2	4	4	9.6	1 3/4	125	38	1 7-8	28	43	46	21
Nulhegan	"	Nov. 1850	16	20	10	1 1-8	2 1-2	5	4	4	10	1 3/4	125	40	2	28	43	46	22
Montreal	"	Oct. 1850	16	20	10	1 1-2	2 1-2	4 1-2	4	4	10	2	125	"	2	38	43	45	23
Montpelier	"	April 1852	15	24	10	1 1-2	2 1-2	5	4	4	10.6	2	185	"	2 3-16	37	42	50	24
Champlain	"	Oct. 1850	16	20	10	1 1-2	2 1-2	4 1-2	4	4	10.6	2	125	"	2	38	48	50	23
Missisco	"	Aug. 1848	15	18	9	1	2 1-2	5	4	4	9.6	1 3/4	125	38	1 7-8	28	43	46	21
Sorell	"	April 1848	15	20	7	1 1-8	2 1-2	4 1-2	4	4	9.6	1 3/4	125	"	1 7-8	28	43	46	"
Ota Queechee	"	Aug. 1848	15	20	7	1 1-8	2 1-2	4 1-2	4	4	9.6	1 3/4	125	38	1 7-8	28	43	46	"
Old Zack	"	May 1849	16	24	18	1 1-2	3	5	4	4	12.4	1 3/4	125	42	2 1-2	48	55	55	25
Lamoille	"	July 1848	15	18	9	1	2 1-2	5	4	4	9.6	1 3/4	125	38	1 7-8	28	43	46	21
Ethan Allen	"	June 1849	14	24	14	1	3	5 1-2	4	4	12	1 3/4	125	"	2 3-8	43	52	48	21
Swanton	"	Oct. 1852	15	24	10	1 1-8	2 1-2	5	4	4	10.6	2	185	40	2 3-16	37	42	50	24
Canada	Amoskeag Man'g. Co.	Sept 1850	16	20	10	1	2	5.10	4	4	11	1 3/4	182	40	1 7-8	37	42	50	21
Ontario	"	Feb'y 1851	16	20	10	1	2	5.10	4	4	11	1 3/4	182	40	1 7-8	37	42	50	21
Express	"	"	15	20	14	1	3 1-2	5.10	4	4	11	1 3/4	182	40	2 1-4	37	42	50	21
Ottawa	"	Jan'y	16	20	10	1	2	5.10	4	4	11	1 3/4	182	40	1 7-8	37	42	50	21
El Dorado	"	Aug. 1852	16	20	13	1	2 1-2	5.10	4	4	11	1 3/4	182	42	2 1-4	38	42	50	22
Windsor	Essex Co.	May 1852	15	18	12	1 1-8	2 1-2	5	4	4	11	1 3/4	154	40	2 1-8	38	40	52	23
Northfield	"	"	16	20	12	1 1-8	2 1-2	4 1-2	4	4	11	1 3/4	154	40	2 1-8	38	40	52	23
Richmond	"	Aug.	16	20	12	1 1-8	2 1-2	4 1-2	4	4	11	1 3/4	154	40	2 1-8	38	40	52	23
Essex	"	"	16	20	12	1 1-8	2 1-2	4 1-2	4	4	11	1 3/4	154	40	2 1-8	38	40	52	"
Waterbury	Souther	March	15	20	11	1	2 1-2	5 1-2	4	4	10	1 3/4	135	42	2	38	38	45	22
Stranger	Taunton Co.	Oct.	15	20	12	1	2 1-2	5 1-2	4	4	11	1 3/4	152	40	2 1-4	38	42	57	22
Royalton	"	Dec.	15	20	12	1	2	5 1-2	4	4	11	1 3/4	152	40	2 1-4	38	42	57	22
Iron Horse	Souther	June 1853	15	20	18	1	2	5 1-2	4	4	10	1 3/4	135	42	2	38	38	45	23

## Steam Power on Highways.

We never advocate any mechanical arrangement of whose value we do not feel certain. We are not the advocates therefore of the use of steam carriages, however successful they may be as mechanical arrangements; as we have not the evidence necessary to determine our opinion fully in favor of their immediate adoption. But yet, neglected or matured, the idea of using steam on common roads is one of intrinsic value. It is only upon this point that we make any controversy with the *Scientific American*, a journal ostensibly devoted to scientific improvements, but which is opposing the idea of steam as a motive power on highways, without exhibiting any arguments whatever, and apparently actuated by no motives but those of hostile prejudice or selfish interest.

The *Scientific* opposes the idea in question as already obsolete, the reason being that it was tested years ago and was found unsuccessful. Is that a reason? Cannot steam be used on any plank or gravel road because a carriage built twenty years ago could not do it, setting aside the true fact that steam carriages were eminently successful, and were only neglected on account of the cotemporary introduction of railroads. It is just as much an argument against Railroads that Hackworth's engine was not "successful" at the trial of engines at Rainhill on the Liverpool and Manchester line. If the principles contained in Stephenson's engine had not then been tested, what would have been the general success of railroads, which our cotemporary calls the "great sensible idea of the present age."

Another "sensible idea of the present age," as the *American* calls it, is to convert common roads into railroads. We are most happy, for the sake of our national resources, that such an idea is not entertained, in its implied sense, by any body who deserves standing room in the "present age."

Steam carriages are proposed, now to supply a different want from what existed in 1880. If generally adopted then they would have been used to carry passengers from London to Liverpool: if again introduced it would be to take the place of omnibuses in cities, and for a large variety of movement for whose accommodation it would be unreasonable to build an expensive railroad.

The position which steam carriages should hold is an intermediate one; being far in advance of the horse-power system, and far below the railroad system.

It is this position which the advocates of steam carriages would wish to assign to them.

The railroad system is the union of two valuable ideas, the reduction of the resistance to motion, and the application of steam power to overcome the resistance thus reduced.

The system of "city railroads" involves but one of these ideas, the reduction of resistance, the power being that of horses.

The steam carriage system involves the other of these ideas.

So long then as highways are kept open for travel, so long therefore is there a proper field for the exertions of those who seek to apply steam carriages. So long as the question involved is not one of road, but of power, the advocates of steam carriages have the best of their scientific opponent. And it must be said that if, as the *American* admits, "the idea of using steam on common roads was plausible before the era of railroads," it is

more plausible now than ever, for the supremacy of horse-power in our large cities has become a nuisance. Railroads have given employment to more horse power than could have ever been supported without them.

We have nothing to say as to when steam carriages may be introduced in our own city; the steam fire engine of Cincinnati has not yet been introduced here. Not one half of the inventions patented at the Scientific American agency have yet been successfully introduced, nor are they likely to be. Steam carriages can never be introduced merely by making them, let them be ever so safe, economical and capacious. The introduction of this system of locomotion must depend only upon a great popular movement, such as marked the introduction of railroads. We will find mechanics enough who will build steam carriages which shall be "fully successful" as mechanical arrangements, but to elevate them to a popular system is not so easy.

The harsh notice by the *American* of a recently improved steam carriage by an ingenious and most persevering inventor, J. K. Fisher, Esq., betrays an opposition founded on prejudice alone. The blundering criticism of one of the best features of Mr. Fisher's improvement, shows that the *American* is sadly deficient in knowledge of one of the best arrangements adopted along with the "sensible idea of the age." The *American* should be taken to task particularly for the following portion of its notice.

The steam carriage was asserted to be an improvement on all others; and one of these improvements was placing the cylinders outside of the wheels, an arrangement which gained for "Bury's locomotives the title of "Boxers." The arrangement is a bad one in every sense of the term; for at high velocities, the carriage would acquire a sinuous dangerous motion, like that of a drunken man ready to tumble into the first ditch.

The cockney allusion to a crude specimen of the locomotive, made many years ago, (Bury having for years made no other than inside-connected engine) would not be appreciated in a ride at 60 miles an hour upon any of the first-class and beautiful outside-connected engines of the Hudson River road. It is perhaps a sufficient answer to the following communication which the absurd statement of the *American* has called out from Mr. Fisher, to say that outside-connected engines are beginning to take the place of those upon any other plan, even in England; while here for many years, they have been recognized as the best and, properly counterbalanced, the *steadiest* engines in use.

## OUTSIDE CONNECTIONS IN DANGER.

Mr. Editor: The *Scientific American* is down upon outside connections: says "they cause a sinuous dangerous motion, like a drunken man ready to tumble into the first ditch," and are "bad in every sense of the term." All this and more besides, he says to show that my steam carriage is worse than all those with legs, and without legs which could not go as fast as two-horse stages, between Glasgow and Paisley, in 1833 or '84, built by "Gordon" or Napier, or Russell, it does not know which.

As you advocate this mode of connection, I presume you can tell me whether, at 60 miles an hour outside connected locomotives have any sinuous motion when duly counterweighted, and whether,

if they ran only a quarter as fast and had but half their length of stroke, they would have a "sinuous, dangerous motion," if not counterweighted at all. If there is such terrible trouble as this, and if there is no way of getting rid of it, and outside-connections are "bad in every sense of the term," I want to know it, so that I may put my engines inside. I do not perceive any "sinuous dangerous" motion in my carriage, when running down the slopes of Broadway as fast as it will go.

I want to know your opinion. Will such locomotives run off the track? Will such steam carriages run into the first ditch? Can they take milk to market without making butter of it? How shall we avoid these evils? Can they be avoided.

Do you know anything of Bury's locomotives, which the *Scientific* says got the title of "Boxers," by the right-and-left-handedness of their outside connections? Do they still continue in use? Does Stephenson or Crampton, or anybody in England, build outside-connected engines? Are they given up there, and universally admitted to be "bad in every sense of the term?" Are the American builders finding out their error, and giving them up? Did any *Scolchman* ever build one?

Please answer some of these questions and oblige

Yours truly,

J. K. FISHER.

## North Carolina.

With the exception of the Wilmington and Weldon and Raleigh and Gaston roads, the railway enterprise of this State is quite recent. The Eastern portion of the State, long accustomed to enjoy the advantages of the through travel over the Wilmington road, is extremely sensitive to any new connections likely to be made between roads in the Western part of the State, whereby a new through Southern route may be formed.

Opposed, very naturally, to any diversion of its accustomed business, Wilmington, the only considerable marine port of the State, seeks to strengthen its position by making itself the converging point of the railroad system of North Carolina. With the Weldon road, into which the North Carolina Central enters at Goldsboro, with the Wilmington and Manchester road, and with a road to be built to Charlotte, Wilmington is quite well established in this position. It is probable also that an intermediate road will be required, running along the Cape Fear river to Fayetteville, one of the largest interior towns of the State.

With the present position of Wilmington it is not probable that that city is expected to become the terminal point for trade and travel going South, but that it seeks principally to reap the incidental advantages of traffic *in transitu* through its limits.

On examining the direction of several important interior lines, now built or completing, it is seen that a line of road extending from Richmond to Danville, Va., coincides with the general direction of a portion of the North Carolina Central, and with the Charlotte and South Carolina, proposed Columbia and Hamburg, and roads extending through Georgia. By the construction of 50 miles of road between Danville and Greensboro, this line, with the links now under construction, would

complete a continuous interior railroad line from Richmond, Va., to Augusta, Ga.

At the present time the Danville and Greensboro connection appears to be the bugbear of Eastern Carolina. But if Wilmington is to suffer from the construction of interior lines, (and we very much doubt it) there is more imminent danger, and some of it a little nearer home. The extension of the Orange and Alexandria road, in Virginia, connecting with the roads running through East Tennessee, will make the most direct route for all the long through travel going beyond Charleston and Savannah; and for such as seeks these two cities Wilmington is already in the right spot. Again, the road proposed to be run from Cheraw to Raleigh will complete an intermediate interior line, leaving Wilmington off the route.—What is she to do? The Wilmington Herald represents the sentiment of the Eastern part of the State as follows:

The project of connecting Danville with the N. C. Road at Greensboro, we see, is still entertained. We believe that this project was popular at Charlotte, until the proposed road from this place to that thriving town, was agitated. It may be that there is a feeling still in favor of this connection; but we would intimate to our friends of Mecklenburg, that of all the projects of Railroad improvement heretofore suggested, or likely to be presented, this Danville connection scheme is the most distasteful to our people; and we concur entirely with the Charlotte Whig, that the agitation there of this Danville Road, will excite the feelings of the people of this section, and very materially cool their ardor towards the proposed new work from Wilmington to Mecklenburg. Let us hear no more of this Danville connection scheme. We are tired of its very name, and of the influence it would have, if completed, upon the State generally, and upon this section in particular.

If the Danville connection will have so fatal an influence "upon the State generally," what is the State to do when assailed by still better connections, against which opposition would be useless?

Now we are anxious to see the Danville connection formed, for the advantages it will confer upon a long and important line of roads, and with the full belief that it will benefit North Carolina "generally." Railroads are like rivers, while they drain them fructify, and we do not therefore believe that the vital strength of North Carolina is to be exhausted by any road running within its territory. The connection so much dreaded would only fertilize the business bases of its route, and make Charlotte, particularly, a more desirable point than ever before for the Western terminus of a road from Wilmington. The important town of Charlotte, lying nearly on an air line from Wilmington to Ashville and Knoxville would ultimately become the necessary point of intersection between the great East and West and North and South lines of the State, and would be one of the most desirable points with which Wilmington could be connected. The people of Wilmington are aware that the people of Charlotte could connect themselves more directly with Charleston than with any other marine port. A cheap road within the Catawba valley, using 30 miles of the "Camden Branch" and a nearly equal length of the South Carolina road, would be a "cut off" which might be necessary if Wilmington did not advance with her proposed road. A road to Charleston could be built and run

cheaper and quicker than the road to Wilmington. Charlotte is already connected with Charleston by a tortuous line of roads. Columbia alone will build a direct line from Camden Junction to Charleston, and there would be little difficulty in obtaining a direct route from Camden to Charlotte.

The South Carolina lines and Richmond and Danville road will properly look upon the right to the Danville connection as honorably due to the enterprise which is to do so much to develop and enrich the State of North Carolina, and will justly attribute its refusal to a want of courtesy on the part of the State. The report of the engineer of the Columbia and Hamburg road intimates that the right of way will be secured by a direct purchase of the lands to be occupied as a route. He says of the connection, "there is certainly no place in the United States where a road is more needed than here, or where the effects of the construction of a short line would be more distinctly felt. If North Carolina persists in refusing a charter to this road it will be built *without one*; on a road of its length there would be no difficulty in doing so."

But it is not necessary for any part of North Carolina to act on the defensive. While it is absurd and nearly impossible to force commerce from its convenient channels, and especially a "through travel" which, at any moment after the completion of new lines, might abandon the State entirely, it is only necessary for the State to encourage the construction of railroads wherever capital will incur the risk; and she is sure to attract and retain an aggregate of industry, enterprise and wealth far surpassing the forced gains from any obstructive policy.

#### Louisville and Nashville Railroad.

The following reply of Mr. Shreve, Prest. of the L. & N. R. R. Co., to some inquiries addressed to him with reference to the means and resources of his company, gives a brief exhibit of its financial condition.

OFFICE LOUISVILLE AND NASHVILLE R. R. Co.,  
LOUISVILLE, Aug. 20, 1854.

WILL. WATKINS, Esq.—Dear Sir; I received your favor, postmarked of this date, containing four interrogatories, to which you request prompt answers for reasons given. If this company could have been advised specifically as to the "various rumors" alluded to in your letter before me, I doubt not more ample information could have been given, but in the absence of such specifications the reply must be confined to the inquiries as made.

To your first inquiry, "Have any of the bonds of the company been sold, and if so, how many?" My reply is: All of the city bonds have been disposed of; thirty-eight county bonds have been disposed of. No first mortgage bonds have been sold.

Second Interrogatory.—"Have any of the bonds of the counties subscribed to the road been sold, and, if so, how many?"

Answer.—Eighteen bonds of Davidson county have been paid to the contractors, twenty to the locomotive builders, and ten sent to Frankfort-on-the-Maine for sale. The residue are in the possession of the company.

Third Interrogatory.—"Are the bonds of the company or the county bonds in any way pledged or hypothecated so that the company cannot demand and obtain possession of them without cost and detriment to the character and credit of the road and its securities?"

Answer.—No bond of this company, nor the county bonds, are pledged, hypothecated, or other-

wise disposed of, other than stated in answer to second interrogatory.

Fourth Interrogatory.—"In view of all the circumstances by which you are surrounded, will you be able to successfully carry out the pledges made the stockholders at their meeting, to build the road, during this year, to the junction of the contemplated branch road to Lebanon, with the aid of the city taxes levied this year for the Louisville road?"

Answer.—If the contractors will execute their contract, this company have every confidence in redeeming every pledge given—unless from low water preventing the delivery of the iron. No reason is now known why the road to the divergence of the Lebanon branch may not be completed in all the present year. Referring you to the annual statements contained in the report of the Board of Stockholder's meeting, June 19th, 1854, I hope with what is here reported, will be satisfactory in reply to your questions proposed, with assurance that it will at all times afford this company much pleasure to furnish any information in relation to all matters connected with their management of this road.

Very respectfully,  
L. L. SHREVE, President.

#### Railroads in the West.

We wonder at the growth of the west. We wonder at its progress in the construction of Railroads. What are the causes upon which our conjectures may be satisfied? Simply its natural wealth and the energy which is seeking its development: its materials and its men.

The western country, having little impracticable ground and inviting settlement in every direction, offers the surest and most liberal reward for effort. Those who have gone there have carried with them strong personal ambition and energy; they have gone to reclaim an empire that they may become rich in its possession. They have, as a class of settlers, carried but comparatively little moneyed capital with them, but they have applied their own strength to breaking up the prairies and felling the forests; and thus have they developed the fruits of a rich soil,—products which if carried to the great markets will command wealth sufficient to enrich large communities. The present exportation of wheat from the State of Ohio is nearly equal to the whole foreign export of the country. This one product of Ohio will be sufficient this year for an exportation worth probably \$25,000,000 in the New York market. If, in usual seasons, the wool, pork, wine, tobacco and other products be similarly estimated, we may be able to form a just idea of the elements of wealth abounding in such a country as the west. It is this view which discloses the real value of natural wealth;—Ohio, with its valuation of eight hundred millions of dollars, of which but a small part has been carried into it by capitalists, most of it being actually developed from the soil and mines.

But slow would have been the development of Ohio if her natural products had depended only upon her rivers for avenues to market; and if to reach those rivers the surplus of the interior had eat up its own value in waggon carriage. Slower yet for States further west and north west, still further from the great markets, having fewer natural channels, a soft yielding soil—slower would be the development of those vast productive areas without the aid of railroads. The railroad is a necessary attendant upon, and often the pioneer of settlement. In many localities it is the only medium of exchange. It gives to wheat, to pro-

visions and to fruits the only value they can have above their support of the producer. Giving a reward to industry the railroad also confers value upon minerals, lumber and upon many other natural products which serve as the bases of manufactures; none of which without the means of, and the consequent inducements for, carriage, would have a greater value than air or water. It is industry and exchange only which give them value.

What an adaptation of country to railroads and of railroads to the country! A vast interior continent, bearing the treasures of future millions of beings, open in every direction to development; inviting communication between all points where population may seek to concentrate!

Is it not indeed in the great center of future empire, where the adaptation and the need of railroads are alike greater than elsewhere, that they should be most encouraged? If solvency is the basis of credit what confidence should we not have in the west. Material assistance needs only protection from abuse. Money advanced requires only to be confined to productive enterprises, as mere speculation is not so. Railroad investments, if based upon substantial resources of route, such as confirmed experience can approve, possess the soundest guarantees of support and redemption. The only leading obligation which should be imposed upon railroad enterprises is that they should be originated and one half paid for by the people immediately upon the route of the road. We doubt if sound financiering should accept a less guarantee. If otherwise there is no real evidence that the improvement is wanted, or that the people will be able to sustain it.

#### Journal of Railroad Law.

##### FRAUDULENT TRANSFERS OF STOCK.

Inasmuch as stock like all other property is occasionally transferred for fraudulent purposes, the purchasers of stock should not compromise their rights by any equivocal conduct of that character which is usually regarded as indicative of fraud. It is not always prudent to suffer the seller of stock to receive the dividends thereupon, although he may be able to show that they were received in behalf of and by the authority of the buyer. In regard to this the case of *Sabin vs. the Bank of Woodstock* 21, *Vermont Rep.* 353 will be found instructive. By a provision in the charter of that institution, no transfer of its stock was to be valid unless recorded in a book to be kept by the Bank for that purpose, and unless the person making the same should have previously discharged all debts due to the Bank. In October 1835 one Sabin who was the owner of nearly 200 shares of the capital stock of the Bank transferred his stock in due form on the books of the Bank to 45 different persons without consideration and simply for the purpose of influencing the result of an approaching election for Bank officers. Nearly all the shares, but not those conveyed to plaintiff, were reconveyed to Sabin by the persons to whom they had been transferred, and on the 9th of October 1837 he made a similar distribution of his stock for a similar purpose and at the same time transferred to the plaintiff two shares. Sabin was at this time indebted to the Bank to an amount exceeding the value of all the stock owned by him. The plaintiffs had no interest in the six shares which stood in his name until 25th October 1837, when

he purchased them of defendant in payment of pre-existing debts. On 16th of November 1839, the Bank attached these six shares as the property of Sabin on a debt which accrued Jan'y 6th, 1837, previous to the plaintiff's purchase and caused the shares to be sold on execution satisfy such debt. From the time the transfers were made in the Bank to the plaintiff until the time of the attachment, Sabin controlled the six shares as well as the others which he had transferred, as his own property and received the dividends upon them which were paid previous to the attachment, and the plaintiff made no claim on the Bank until 1841, when he demanded the dividends, and one dividend which became due previous to the sale on execution was paid to him, and the payment of those which accrued afterwards, refused. It was held by the Court, that plaintiff having so long suffered Sabin to treat the shares as his own was bound to inquire of the Bank as to the state of the title to the shares before purchasing them, and to give notice to the Bank of his having become the beneficial owner; that as between him and the Bank his title would only be considered as accruing from the time that such notice was given; and that the Bank having attached the stock previous to notice, could as against the plaintiffs, proceed to have the same sold. Nor did the Court consider that it made any difference that a majority of those who were Directors had advised Sabin to transfer his stock in the way above described. They had no right so to advise, although bona fide purchasers of stock who have had no notice of anything which might invalidate the title, are at liberty to rely upon the books of the Bank, as affording all requisite information as to the title of stock.

In fine, the Court was of opinion that although the formal title to the stock was in the plaintiffs, yet as he had for years suffered the real owner to act as if the shares were his own, he was bound to make inquiry concerning the stock before purchasing and after he had purchased he should have given notice of the fact to the Bank.

##### The Rock Island Bridge.

The War Department has interposed its authority to prevent the occupation of Rock Island for a valuable connection between the Chicago and Rock Island, and the Mississippi and Missouri Railroads. Rock Island, in the Mississippi river, between Rock Island City, Ill., and Davenport, Iowa, is held by the national government as a military reservation, and was occupied as a military station some years ago, but since the surrounding country has become independent of military protection it has of course been abandoned. The government has now no more use for the island, for military purposes, than for Mount Washington in New Hampshire. And if it had, the presence of a railroad would not impair its value for such purposes. The island is subject, however, to the disposition of the War Department, and it is probable that some diplomacy, if not a direct appeal to Congress, will be required, before the obstinacy of the administration can be overcome. The recent administration purchase, on national account, of a worthless strip of Mexican Territory for a Southern route to the Pacific, may have created a private interest adverse to any bridging of the Mississippi, unless coincident with the "Gadsden" route.

##### Railroads and the Times.

In our opinion, one of the narrowest views which can be taken of the circumstances of the times is that which charges railroads with being the chief absorbents of our capital. The relative cost of our railroads to our available means does not warrant the popular belief. If, in a year of activity and success, we open 2000 miles of railroads, our cautious advisers tell us we have drained the country of at least \$75,000,000. Now it is probable that \$15,000,000 only, paid for iron, is all that has gone out of the country, a sum scarce one twentieth of our ordinary foreign purchases. The balance of \$60,000,000 has been put in circulation at home, giving employment to our constructive industry, and developing domestic materials. Such an appropriation of energy and material is not less productive than that devoted to numberless property improvements. If the annual industry of our nation be averaged upon its 25,000,000 people, as being worth \$50 per head it amounts to \$1,250,000,000; our railroads getting less than one twentieth part in the periods of their greatest progress.

Now we think we can discover a better solution of the problem than by saying we are "short" through our patronage extended to railroads. The natural impulse which railroads give to general industry, and particularly the fixed improvements to which they lead, consume a great portion of our capital. Well do our people know that the approach of a railroad gives to small towns the wants, the necessities, of moderate sized cities. Young villages become active competitors for labor, and assume the support of large bodies of workers, in carrying out local improvements. And how is it with our cities. Let the wonderful concentration of our people within city limits tell the story for the last fifteen years. The streets, warehouses, handsome dwellings, piers, ships, shops and shows of metropolitan towns have consumed an aggregate of capital to which the cost of all of our railroads bears no comparison. If railroads incidentally open the door to new wants, and our people choose to gratify them, Railroads are not chargeable with the consequences.

Our Railroads, too, have attracted to our country an amount of foreign capital of at least \$150,000,000; a sum which, while it represents more than one third of their cost, has been the means of adding to our actual wealth more than the whole cost of all of our railroads.

We have thus a solution of the problem of financial stringency. We think it the most rational of any. While it relieves our roads of the imputation of consuming our principal surplus wealth, we do not attach the importance given by some to the extravagance of the times. Notwithstanding our government is throwing away annual millions or useless treaties, on lumbering diplomacy, and needless efforts to sustain abroad a national dignity, already able to sustain itself—notwithstanding the annual excess of our imports, and the occasional abuse of the spirit of improvement, leading to luxury and extravagance,—still, it is clear as noonday that the vast development of our country, its revolution of improvement, undeniably promoted by the influence of railroads, is absorbing and is likely to absorb all of our available means.

Let not those then who anticipate the approach of railroads, and who put all of their capital in re-

quisition in improvements of property, grumble if railroads themselves, the necessary agents of progress, become competitors for their money.

We feel forced into this vindication of our railroads by the current but temporary distrust of their value, and by the imputations of those who charge them with all of our financial difficulties.

We are especially sorry to see this sentiment echoed in Kentucky. While we are convinced that the whole doctrine is unsound, we must say that if Kentucky be taken as an individual illustration, she has been drained to but a comparatively small amount by her assistance to railroad enterprises. The only two short roads in operation in that State have been embarrassed for the want of money, and one in construction has already failed to meet the interest on its bonds. We do not wish to reflect upon the enterprise of the State, but in vindication of an important interest, we must say that at this time, in view of the resources of Kentucky, and of the influence which railroads are destined to exert upon her, no paper occupying the position of the Louisville Journal should seek to chill enterprise in the bud, and array the fears or prejudices of the people of a great state against their surest means of advancement.

#### Security from Fraud.

The occurrence of one or two great frauds has been the greatest test of the condition and of the fidelity of the management of our railroads which they could have. The corruption of a leader often stigmatizes a cause, and so the individual soundness of every railroad company was in a measure involved in the popular opinion of Schuyler. The most searching investigations have followed in nearly all quarters, and for the credit of our railway enterprises it should be at once said that where frauds have not been already disclosed, everything is found secure. Where our roads are built by the people, by those who contribute from their own means and retain the management among their own number, there is little fear. But wherever the public become dazzled by the abilities or successes of an individual, and incautiously yield him the entire control of their interests in large investments, recklessly according the title of Steamship, Factory, Banking or Railway "King," as his employment may happen to be, there is no real security from fraud and loss. The result is sure to realize the ancient fable of Jupiter and the frogs; wherein it was shown that the first act of a king, created by a multitude, was to devour his own subjects.

We know as much as any one, that no single material interest of the country requires more extended and more purely sustained personal confidence for its existence, than the railway interest. Hence, we are anxious, to a corresponding degree, that this confidence be not abused, either by those who extend or those who sustain it. It is this conviction that compels us to hesitate when we see a "strong name" lent to the support of an unworthy project. And we are, at the least, oppressed with anxiety to see such a name in demand, indiscriminately, for all projects. There is no tyranny like that of the individual; no slavery like man-worship.

Our people are very apt to confound success with ability. As the world goes, success oftener follows power than talents. Schuyler himself

is a public illustration. As an engineer and as a railroad manager his talents were of a very common order. Nothing that he has done in either of these professions deserves especial commendation. Yet he watched his chances and became apparently "successful." The power to divert public opinion and to maintain the supremacy of the individual will, is the chief element of popular success. Many a poor fellow would be "successful" could he have done as he pleased, putting "ability" out of the question. Sing Sing is but an infirmary for those who have failed in the effort.

As popular deities burst and vanish in thin air our people learn that within themselves is their own strength; that although confidence is essential it sustains an accountability in proportion to the interests it involves, and that none who refuse the test deserve the trust. In public enterprises, individual tendencies must be restrained, and speculation of every kind must be checked except every one interested chooses to incur the risk. It is speculations, conducted by individuals in the name of corporations, that have brought many of the losses and embarrassments lately heaped upon the railroad interest.

We need to feel an evil to correct its cause, we are all safer that we have found our danger. Our roads are using additional means to prevent its recurrence.

The Cleveland Herald in announcing the appointment of a Register of Stocks in this City for the Cleveland, Columbus and Cincinnati Railroad, says:

We learn that immediately after the disclosures of the Schuyler frauds, and on the request of Messrs. Winslow, Lanier & Co., the transfer Agents in New York, the Board directed an investigation of the books of the agency, and the faithful and accurate Secretary of the Company, Mr. Williamson, was charged with that duty. Mr. W. devoted three weeks to the examination—during which time he traced each certificate of Stock that had been issued from the office in New York to its surrender, or to its present holder, and found that there had been no over or erroneous issue, but that in all respects the books had been properly kept and the business of the agency satisfactorily conducted. But the Board have provided an additional guard against fraudulent issues for the future, in requiring certificates to be countersigned by a Register, in addition to the signature of the Transfer Agents as heretofore.

As we understand it, the book of certificates signed in blank by the President is entrusted to the keeping of the Register, who is a distinct officer from the transfer agents. A person desiring to obtain a new certificate surrenders the old one to Winslow, Lanier & Co., the transfer agents, by whom, if the transfer is found genuine and in due form, it is canceled—they subscribing their name thereto, with the date—and directing the name in which the new certificate is to be made out. This certificate is then presented to the Register, who personally examines the transfers, and if found right, also cancels the same, endorsing the date and his signature. He then fills up and countersigns a new certificate and returns it to the transfer agents, who countersign and deliver it to the proper party.

Each office makes a record of its transactions and reports monthly to the principal office—to which also the canceled certificates are returned at stated periods.

It appears to us that this system of checks is perfect, and from the high character of the gentlemen filling the responsible positions of transfer agents and register, as improper issue of stock is rendered impossible.

#### Erie Railroad Equipment.

The engines of this road now number above 200, the majority being of a very heavy class.—Very few roads have a more effective or more actively employed rolling stock. Additions are still making to this branch of the equipment, and although not necessary at present, 450 locomotives will doubtless be ultimately required for the business of the road.

The engines of the road are of considerable variety of pattern. Nearly 60 however, the largest number from any one builder, are from the works of the New Jersey Locomotive and Machine Company. This company may be said to be the leading builders of broad-gauge engines in the United States. Among those from their works are nearly all the heavy ten-wheel engines of the Erie road. The superintendents and engineers of these works were long connected with this road, and have brought out several arrangements in their engines of much value. The use of two steam domes, of the center-bearing truck, and application of flanges to all of the driving wheels, were made by the superintendent of the New Jersey Works during his former administration of the machinery department of the Erie road. Mr. Jackson, the President of the works, expects to deliver this week a broad gauge-engine to the Lackawanna and Western road, of greater power than any that has hitherto been built in this country.

#### Southern Line of Travel.

OFFICE OF R. & P. R. R. CO.  
Richmond, Aug. 29th, 1854.

To the Editor of the R. R. Journal.

Dear Sir,—I notice in your last an article in which it is stated that travellers going south by way of Richmond, Petersburg, &c. are six hours in being conveyed by steamboat from Washington to Acquia Creek, a distance of 54 miles. This is a mistake (no doubt unintentional) the usual time taken by the boats now on this line, to run the distance, is from two hours and three quarters to three hours and a quarter according to the weather. The whole time from Washington to Richmond 180 miles, viz 54 by steamboat and 76 miles by railroad varies from 7½ to 8 hours, the usual time from Washington to Petersburg including time for dinner and the transportation of the mail and passengers through Richmond is 9½ hours. The distance 154 miles. The passengers and mails that leave Washington at 6¼ A.M. arrive in Petersburg at 4 P.M. the same day.

Very respectfully

Yours

THOS. DODAMEAD,  
Sup't R. & P. R. R.

The time, as by the advertised schedule, between reaching Washington and leaving Acquia Creek, going south, is 4¼ hours by the day, and 5½ hours by the night line. Returning North, the time from leaving Acquia Creek to the departure of the cars from Washington is 4¼ hours by the day and 5¾ hours by the night line.

In our statement we did not intend to speak especially of the speed of the boats on the Potomac, but of the detentions as well as time consumed in motion, all of which are suffered from the want of continuous railroad connections from Baltimore to Petersburg. We said six hours from our own re-

collection of one or two trips, and without consulting the advertised schedule.

It is 10¼ hours between the times of reaching Washington in the morning and Petersburg in the afternoon. It is 13 hours also by the night line. Distance 154 miles. We submit that the "important connection in the southern line of travel", alluded to by us, is very much needed.

ED.

#### Compound, or Continuous Rails.

The experience of each successive year makes more apparent the fact that the operation of Railways in this country, is "still in its infancy." And in no other characteristic is this fact more readily perceived, than in the great advances that have been made in the manufacture, and laying down of rails, and the increased speed which has resulted therefrom. From fifteen miles the hour on the old flat bar, we now move forty on the heavy T rail; and it is a pretty well attested fact that with a good pattern of continuous or compound rail, we may journey as safely sixty miles the hour, as we do now forty.

The advantages of a continuous track are obvious to every practical mind. It relieves the car from the constant bounding motion which it now acquires in passing, or jumping, over the rail. The passage of heavy trains over the joints at high speeds settles the chair slightly into the tie and the consequence is the slight depression of each end of the rail which results in the succession of "jumps" before mentioned. The danger occasioned by them to trains whirling along at lightning speed is alarming and restrains the express trains several miles per hour in their progress. Besides this, however is an economical advantage resulting from the use of the compound rail. It is the reduction of the depreciation in value, of the Rolling Stock. It is estimated that the saving on this head alone would, in three or four years, pay the difference in the cost of the rail, even though the old rails were sold at a heavy discount. The compound rail, it is also contended, will wear much longer than the patterns at present in use. This is a reasonable conclusion, for, owing to the steadiness of the train in passing, there is much less friction and the concussions are much less forcible.

Of those patterns of Compound Rails which have been before the public in the *Journal* we have said but little, deeming it best that experience should apply the test and decide upon their merits. The "Wimlow" pattern has had a fair trial on several different roads in this State in all of which the result has been highly satisfactory to all parties. The "Larose" pattern has been tried on the Baltimore and Ohio road and has proved eminently successful. The Wells & Serrell pattern is about to be laid down upon an Eastern road and we look for even more favorable results, from this pattern than have yet been demonstrated. It will be observed that this rail is in *two* parts and requires no fastenings but spikes or chairs. No rivets are used, no severe strain or friction can come upon the "base" rail, and if one side of the "Cap" wears out more rapidly than the other it can be changed with facility; and it seems to us that the rail is so modeled as to secure the best possible service and the full strength of the iron.

We believe true economy and a proper regard for the safety of life, require the adoption by rail-

way companies, as rapidly as practicable, of the continuous rail. The best pattern will be discovered by use. That all, thus far, are economical and safe in a great degree is one strong point in their favor.

#### Railroad Consolidation between Cincinnati and Chicago.

According to previous notice, a meeting of the stockholders of the Cincinnati and Chicago, and the Cincinnati, Logansport, and Chicago Railroad Companies, was held at New Castle, Indiana, on Thursday last, to consider the propriety of consolidating the two companies, and after a free and full discussion, in regard to the beneficial results of such an act, a vote was taken upon the question and upward of thirty thousand four hundred votes were cast in favor of consolidation, and none against it. After which the consolidated company assumed the name of the Cincinnati and Chicago Railroad Company. The following gentlemen were then elected Directors to serve till the first day of January 1855.

C. B. Smith, R. M. Corwine, James Pullan, Jos. A. James, D. A. Powell, of Cin.; Williamson Wright of Logansport, Ia.; Col. S. Meredith, William Buttler, Jesse Hlat, of Wayne Co., Ia.; Judge M. L. Bundy, of Henry Co., Ia.; Judge T. J. Sample, of Delaware Co., Ia.; Sam'l Jay, of Grant Co., Ia.; and Col. H. Hannah, of Wabash Co., Ia.; after which the Hon. C. B. Smith was unanimously elected President of the new board, Col. S. Meredith, Vice President, and Stanhope S. Rowe, Secretary. The office of this Company is established at No. 33 Ohio street, Cincinnati.

This road is a continuation of the Cincinnati Western R. R., and one in interest, and is now the direct line between Cincinnati and Chicago. A large force, we understand, is now at work upon the road.

#### Syracuse and Binghamton Railroad.

A correspondent of the *Albany Register* says of this road, and of the country which it is to develop as follows:

At the south of the Syracuse and the New York Central Railroad, north of Binghamton and the New York and Erie Railroad, there lies a broad extent of fertile country, comprising the southern portion of Onondaga County, the eastern portion of Cayuga, the whole of Cortland, the western part of Chenango, the eastern part of Tioga, and the northern section of Broome, which has been heretofore entirely shut out from the world.

The Syracuse and Binghamton Railroad is now nearly completed, running through the centre of the section of country named. It is eighty miles in length, upon forty miles of which, twenty from Syracuse southward, and twenty from Binghamton northward, the track is laid and cars are now running. It is intended that the remainder shall be finished and the cars run through by the twelfth of September.

#### Kennebec and Portland Railroad.

A meeting of the stockholders of the K. & P. R. R., was held at Augusta on Monday, to consider the question of leasing the Somerset and Kennebec Railroad.

The directors were authorized to take such lease if a satisfactory arrangement therefor could be made, and it was further voted to raise \$10,000, by an issue of 6 per cent preferred stock to purchase new equipment for the line.

The road is to be finished to Kendall's mills, during which time it is expected also that the Bangor will be completed.—*State of Maine.*

#### Portland Locomotive Works.

The Portland Company are just turning out two splendid locomotives for the Panama R. R., of 5 feet gauge. This company are full of work, and now employ 820 men.

Charles Jones, Esq., has been appointed Treasurer of the company, in room of J. C. Churchill, Esq., resigned. Mr. Churchill has held the office for some six years past, and now retires at his own request.—*State of Maine.*

#### Railroad Effects.

No man can long continue a skeptic as to the effect of railroads on the general development and prosperity of the country through which they pass who will take the trouble to keep his eyes open while passing along the Baltimore and Ohio Railroad. At every station almost a neat and thriving village is springing up, in many places towns, while the entire country wears a new countenance under the vigorous efforts of the husbandman, who now finds a market for his products, a place of purchase for his wants, and in every way calculated to reward his honest toil. Heretofore he could barely live by consuming what he made and making what he consumed; and now the market is at his door, and he can sell all that he makes and more than buy with his receipts all that he wants. The price has increased cent per cent, in many places, while the general tendency of everything is to go ahead. Counties can observe, profit, and learn hence, that their corporate subscriptions are repaid them with interest the moment such works are completed, even should the stock not pay one per cent, or sell twenty per cent, on first cost.—*Wheeling Intelligencer.*

#### Survey of the St. Lawrence Rapids.

The survey of the rapids of the St. Lawrence is being pushed forward with vigor by Messrs. MAILLEFERT & RAASLOFF. The survey of the Coteau Rapids is now finished; and the surveying party has commenced descending the river towards the "Cedar" Rapids. Some accidents have occurred, but hitherto no lives have been lost. Mr. MAILLEFERT will make experiments in blasting rocks to clear the channel, in the mode so successfully pursued by him at Hell Gate.

#### Railroad Employees.

The following testimonial of the temperance character of the engineers upon the New York and Erie Railroad, is from the Rev. A. S. Lakin, Missionary of the Ladies' Home Mission at the Five Points, who has long resided in the region traversed by that road, and is acquainted with many of the individuals. He says:

"The engineers, though they felt aggrieved until the new regulations were fully explained, are now perfectly satisfied, and are carrying out the order with credit to themselves and safety to the passengers of the road. One of the assistant Superintendents informed me that, during the strike, not one of the engineers were under the influence of spirituous liquors.

There is nothing insures the safety of passengers more than a sober engineer. This and the picturesque scenery, vast mountains and glens, small rivers and majestic rivers, highly cultivated fields and extended forest, with some of the finest works of art in the State, and the polite conduct of the conductors, makes the Erie road one of the most safe roads in the country; whilst the wide gauge, commodious, strong and well ventilated cars, make it the most comfortable.

#### Discharge of Oswego River.

The Oswego Times and Journal says: We learn from the engineer of the canal that there was on Saturday but 54,350 cubic feet per minute of water passing down. That the lowest water found at any other time as far back as 1848, was 129,600 cubic feet per minute—and that the amount passing in ordinary high water is 692,680 cubic feet per minute.

This river drains more than 7000 square miles of territory.

#### Railroad Iron.

2,000 TONS Railroad Iron, 54 to 60 lbs. per square yard. For sale by

THEODORE DEHON,  
28½ Broadway,  
New York.

Contracts made as above for Rails deliverable at English or American ports at lowest rates.

500 TONS No. 1 Glasgow Scotch Pig Iron, in lots to suit purchasers for sale by

NAYLOR & CO.

90 and 101 John st.  
N. Y. — The above Iron constantly imported.

**ZERAH COLBURN,**

ENGINEER AND AGENT

FOR the Design, Construction, Valuation and Purchase of Locomotives and Railroad Machinery.

Offers his services to Railroad Companies in either of these departments, having long experience and the best facilities for all.

As CONSULTING ENGINEER he will advise as to the value or adaptation of any system of motive power, and furnish drawings, estimates and specifications for any arrangement of engine.

As ACTING ENGINEER he will superintend the construction, survey, or reconstruction of any railroad machinery, and guarantee satisfactory results.

As CONTRACTING ENGINEER, having connection with the most reliable and successful manufacturers, he will negotiate for the purchase of Locomotives of the very best construction and proportions. Also Wheels, Tires and Repair Shop Machinery.

Having much experience in Patent Business he will undertake the preparation of Drawings, Specifications, Applications for Patent or Caveat and other papers necessary for inventors. He is able to give material assistance in bringing inventions and improvements in Railroad Machinery into favorable notice.

**CHILLED TIRES FOR LOCOMOTIVE DRIVING WHEELS.**

Zerah Colburn retains the principal agency for the sale and right of use of this valuable improvement, and will furnish the most substantial guarantees of its Safety, Durability, Adhesion and great ECONOMY.

Office, 3d floor American Railroad Journal Building,  
No. 9 Spruce street,  
New York.

## REFERENCES.

The New Jersey Locomotive and Machine Co.  
James Jackson, Pres't., Paterson, N. J.  
Chas. W. Elliott, Vice Pres't., 69 Beaver str., N. Y.  
Henry V. Poor, Esq., Editor Railroad Journal, New York.  
Geo. D. Phelps, Pres't. Del. Lack and Western Railroad.  
Geo. W. Whistler, Vice Pres't. New York & New Haven R. R.  
William Raymond Lee, Esq., Boston.  
Bush & Lobdell, Wilmington, Del.  
Oliver M. Hyde, Esq., Mayor City of Detroit.

**NUGENT'S COLLEGE**

OF

ENGINEERS AND MECHANICS,

Public Square, Cleveland, Ohio.

E. NUGENT, C. E., Principal.

THE design of this Institution is to afford young men an opportunity of acquiring a knowledge of the profession of Civil Engineering, and to Mechanics and Tradesmen a sound theoretical and practical knowledge of Mathematics, Architectural and Mechanical Drafting, Plain and Ornamental Penmanship, &c.

For further particulars address the Principal.

**New York and Erie R. R.**

**PASSENGER TRAINS**  
leave Pier foot of Duane street,  
as follows, viz:—

**BUFFALO EXPRESS**, at 6 a. m. for Buffalo direct, over the N. Y. & E. R. R. and the B. & N. Y. C. R. R., without change of baggage or cars.

**DUNKIRK EXPRESS**, at 6 a. m. for Dunkirk.

**Mail**, at 8 1/4 a. m. for Dunkirk and Buffalo, and intermediate stations. Passengers by this Train will remain over night at any Station between Binghamton and Corning, and proceed the next morning.

**WAY EXPRESS**, at 1 p. m. for Dunkirk.

**ROCHESTER PASSENGERS**, at 4 p. m., (from foot of Chambers Street) via Piermont, for Suffern and intermediate stations.

**WAY PASSENGER**, at 4 p. m., for Otisville, and intermediate stations.

**NIGHT EXPRESS**, at 6 p. m. for Dunkirk and Buffalo.

**EMIGRANT**, at 6 p. m., for Dunkirk and Buffalo and intermediate Stations.

On Sundays only one Express Train—at 6 p. m.

These Express Trains connect at Elmira with the Elmira and Niagara Falls Railroad for Niagara Falls; at Buffalo with first-class splendid Steamers on Lake Erie for all ports on the Lake; and at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Toledo, Detroit, Chicago, etc.

D. C. MCCALLUM, General Sup't.

OFFICE CINCINNATI, HAMILTON & DAYTON R. R. Co.  
Cincinnati, August 5th, 1854.

THE Board of Directors of this Company have this day declared a Dividend of Five per cent. out of the net earnings of the Company for the Six months ending 31. July, payable in Scrip bearing Seven per cent. interest redeemable in three years. The Scrip will be delivered on and after Sept. 1st, to the Stockholders registered in Cincinnati on application at the office of the Company, and to those registered in New York at the office of the Ohio Life Insurance & Trust Company in that city. The Transfer Books will be closed for ten days from this date.

FRANK E. BOND, Secretary.

**For Sale.**

A STATIONARY Engine, having cylinders 18 inches bore and 20 inches stroke complete in all respects and finished in the best manner. Has been in use about six months.

ROGERS, KETCHUM & GROSVENOR,  
Paterson, New Jersey,  
[Jul. 14 29 tf.] or 74 Broadway, New York.

**A. B. Warford,**

Chief Engineer, Susquehanna Railroad, Harrisburg, Pa.

**To Engineers and Surveyors.**

A YOUNG man, 18 years old, wants a situation (to learn the business) as chain carrier, in a railroad survey. No objections to go to any part of the country, or world. Good reference can be given if required. Address A. B., Office of this Journal. [82 1m]

**RAILROAD STOCKS, BONDS & STATE SECURITIES.**

The subscriber offers for sale—  
Ohio and Mississippi Railroad Company, 7 per cent. second mortgage, convertible Bonds. Interest payable semi-annually in New York.

Scioto and Hocking Valley Railroad Company, 7 per cent. first mortgage, convertible Bonds. Interest payable semi-annually in New York.

Cincinnati, Western Railroad Company, 8 per cent. Real Estate Bonds. Interest payable semi-annually in New York.

Hamilton County, Ohio, 6 per cent. Bonds. Interest payable semi-annually in New York.

Louisville and Portland R. R. Co. Bonds.

Mayville and Lexington R. R. Co., 6 per cent. second mortgage, convertible Bonds.

Louisville City Bonds.

Cincinnati, Loganport and Chicago R. R. Co., 10 per cent. Income Bonds.

**RAILROAD STOCKS.**

Covington and Lexington R. R. Stock.  
Cincinnati, Hamilton and Dayton R. R. Stock.  
Little Miami R. R. Stock.  
Ohio and Mississippi R. R. Stock.  
Southern Bank of Kentucky Stock.  
Columbus and Xenia R. R. Stock.  
Cincinnati and Chicago R. R. Stock.  
Central Indiana R. R. Stock.  
Cincinnati and Indianapolis R. R. Stock.  
Indianapolis and Bellefontaine R. R. Stock.  
Cincinnati, Wilmington and Zanesville R. R. Stock.

WANTED—\$100,000, for which the best securities will be given.

WANTED—\$40,000, on commercial paper.

ISAAC OSBORN DAVIS,

Stock Exchange and Financial Agency Office,

No. 38 Third street,  
Cincinnati, Ohio.

[32 1m]

**ON THE APPLICATION OF IRON TO BUILDING PURPOSES.**

—JOHN WILEY, No. 167 Broadway, has just published—

**FAIRBAIRN ON THE APPLICATION OF**

**CAST AND WROUGHT IRON TO BUILDING**

**PURPOSES.** By William Fairbairn, C. E., F. R. S., F. G. S., etc. 1vol. 8vo., with numerous Diagrams and Illustrations, and tables for calculating the strength of materials &c. Price \$2.

SELECTIONS FROM CONTENTS.—On Cast Iron Beams for supporting the Floors of Buildings—

Cast Iron Beams with Flanches—Experiments made at Leeds by the Author—Rules for the Strength of Cast Iron Beams—Table of Result—

On Compound or Trussed Cast Iron Beams or Girders—Rule for Calculating the Strength of do.—

Comparison of Cost—Process of Toughening Cast Iron—Experiments—Cupola—Air Furnace—On Wrought Iron Beams for supporting the Floors of Buildings, and for other purposes—Experiments on the strength &c., of do.—On Wrought Iron Trusses—Formula for Calculating the Strength of Trusses Beams, &c., &c.

"No engineer can do without this book."—

Scientific American.

[34. 2t.]

**NOTICE.**

THE Copartnership heretofore existing between the undersigned, under the firm of Smith & Tyson, is this day dissolved by mutual consent. Either partner is authorized to settle the business of the concern.

J. HOPKINSON SMITH,

RICHARD W. TYSON,

No. 26 South Charles str.

Baltimore, July 1st, 1854.

**Notice of Copartnership.**

THE undersigned have this day formed a Copartnership under the firm of J. Hopkinson Smith, in which Richard W. Tyson is a special partner, and J. Hopkinson Smith is the general partner.

J. HOPKINSON SMITH,

RICHARD W. TYSON,

Baltimore, July 1st, 1854.

**Notice of Copartnership.**

MR. PETER MARIE, heretofore of the firm of DECOPPET & CO., has this day formed a copartnership with Mr. RUDOLPH KANZ, (for many years with the banking house of Messrs. L. Von Hoffman & Co.) under the firm of MARIE & KANZ, at No. 27 William street.

Their attention will be devoted to the purchase and sale on Commission of Stocks, Bonds and Foreign Exchange, and to the negotiation of Business Paper.

New York, 1st September, 1854.

**Rensselaer Polytechnic Institute.**

DESIGNED for the education of ARCHITECTS and CIVIL ENGINEERS,—including Railway, Hydraulic, Topographical, and Mining Engineers.

For copies of the Annual Register, giving full information respecting the Institute, apply to

R. FRANKLIN GREENE, Director, R. P. I.

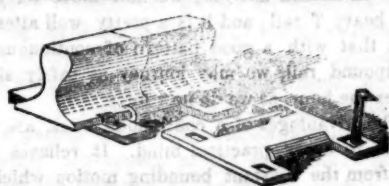
32 3m] Troy, New York.

**Lowmoor Iron.**

W. BAILEY LANG & CO., 54 CLIFF STREET, have in stock and offer for sale an assortment of Round, Flat and Square Bars LOWMOOR IRON, which they will sell by the ton or single bar. The attention of manufacturers, Railway Managers and Mechanics is particularly directed to the quality of this Iron, as its great strength, uniformity, and freedom from flaws, render it the best Iron in the market, where first quality is required.

W. BAILEY LANG & CO., being Sole Agents in the United States and Canada for the LOWMOOR CO., will execute orders at manufacturer's prices.

[32 3m] [3t. 51]

**RAILROAD SPIKES.****WROUGHT IRON Chairs and Fastenings.**

THE undersigned will continue to manufacture with increased facilities, HOOK & FLAT HEAD RAILROAD SPIKES, of all patterns, WROUGHT and CAST CHAIRS and FASTENINGS, BOILER RIVETS, BOLTS, SHIP and BOAT SPIKES, &c., &c.

The best quality of Refined Iron is used, and all orders filled with despatch.

J. HOPKINSON SMITH,

No. 25 South Charles st.

Please direct the name in full.

Baltimore, July 1st, 1854.

[33 tr.]

**Steam Engine and Blowing Cylinders for Blast Furnace for Sale.**

A STEAM ENGINE, 20 inch cylinder, and five foot stroke, together with Blowing Cylinders, five feet diameter, and six feet stroke, in perfect working order, for sale. Apply to

EDW. BECH & KUNHABDT, 62 Beaver St.,

Or, A. TOWAR, Agent Pokeepsie Iron Works,

25tf Pokeepsie, N. Y.

**For Sale.**

BY the Baltimore and Ohio Railroad Company, 24 crute cars adapted to Railroad purpose, which will be sold at a reasonable price. For further information, apply to

SAMUEL J. HAYES,

M. of M., Baltimore and Ohio R. R. Co.,

Or BRIDGES & BRO.,

64 Courtland st., New York,

19 tr

**To Contractors for Railroad Iron.**

PROPOSALS will be received until the 20th September for nine thousand tons of railroad iron T pattern, sixty pounds to the yard. One-half to be delivered at Charleston, South Carolina, and one-half at Wilmington, North Carolina, delivery to commence in January and close in August, equal quantities to be delivered in each month at each place.

Payment will be made immediately on the delivery of each cargo, in North Carolina Funds. The contract will be given to the lowest responsible bidder provided the price be satisfactory. Bidders will endorse their bids—"Proposals for Railroad Iron"—and address them to Cyrus P. Meindenhall, Secretary, North Carolina Railroad Company, Greensboro, N. C.

WALTER GWYNN,

Chief Eng. N. C. R. R. Co.

Raleigh, August 3d, 1854.

[34. 2t.]

**Machinists' Tools. SHRIVER & BROTHERS, Cumberland, Maryland.**

(on Baltimore & Ohio R. R., midway between Baltimore and the Ohio River)

MANUFACTURERS of Engine Lathes, Planing Machines, Drill Presses, Hand Lathes, and other Machinists' Tools.

These tools are built in a superior manner, from the very best materials, and are particularly adapted for railroad shops and all others requiring first rate machinery. Our location is very advantageous for shipping work to the West or South. Orders and communications receive prompt attention. Address

SHRIVER & BROTHERS, Fulton Works,

August 19th, 1854.

Cumberland, Maryland.

[32. 6m]